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HISTORY OF AGRICULTURAL EDUCATION IN ONTARIO

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HISTORY OF AGRICULTURAL EDUCATION IN ONTARIO

BY

A. J. MADILL

A Dissertation submitted in partial fulfilment of the requirements for the degree of Doctor of Pedagogy, University of Toronto.

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PREFACE

IN this work an attempt has been made to show the beginnings and development of agricultural education in Ontario in the various schools connected chiefly with the Department of Education. While special attention has been devoted to its progress in the ordinary elementary and secondary schools, some consideration has been given to its development in the early Indian Mission Schools, in the early Normal School, in the University, and in some special schools.

Although several attempts to introduce agricultural instruction into the schools have been made, yet the amount of work done until a comparatively recent date has been quite limited. As the successes or failures in these efforts have been due, in no small measure, to the social, industrial, political, and educational movements of the times, attention has been given to these factors.

For much of the earlier history the author is much indebted to Dr. J. George Hodgins, who was in close touch with the educational affairs of the province from the earlier days of Dr. Ryerson to the beginning of the present century.

In his Documentary History of Education in Upper Canada, and in his other works, is compiled, from many sources, much information regarding the educational conditions in Ontario not readily available elsewhere.

To several earlier and later writers mentioned in the bibliography, to Dr. J. B. Dandeno, Director of Agricultural Education for Ontario, to Mr. R. S. Duncan, Supervisor of Agricultural Representatives, to Mr. Norman Davies, Principal of the Ridgetown Agricultural Vocational School, to the librarians in the various institutional and public libraries, for information and courteous helpfulness, and to many others who have given valuable assistance, the author is much indebted. To Professor W. E. Macpherson, of the College of Education, Toronto, for helpful and suggestive criticisms during the preparation of the work, my special indebtedness is gratefully acknowledged.

A. J. Madill

Normal School,
Peterborough, April, 1930.

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Chapter I

EARLY BEGINNINGS

ATTEMPTS to improve the methods in agriculture, and to encourage the efforts of the people towards better farming, were made in Ontario, before the end of the eighteenth century. In 1792[1], shortly after the calling of the first Legislature in Upper Canada, an agricultural society was organized at Niagara, then known as Newark[2]. Of its existence and usefulness but little is known at the present time, but from that day, "societies here and there throughout the Province" sprang up and gave "stimulus to the growing of grain, the importation of stock and improvements in agricultural methods."[3]

A means of giving some individual instruction in agriculture, and of helping the would-be farmer to improve his knowledge and skill in the art of farming, was also in vogue before the end of that century. That was by the system of apprenticeship. Recently, there has come to our

[1]James, C. C., *Agricultural Work in Ontario*, p. 3.
[2]Carnochan, Janet, *History of Niagara*, p. 266.
[3]James, C. C., *op. cit.*, p. 3.

notice an agreement[4] between a young man and his employer wherein the former was to be taught the "mistery or occupation of agriculture" and was to be given the rudiments of an elementary education during five years of laborious and faithful service. As documents of this kind are now somewhat rare, and since this one will throw some light on the early practices in agricultural education in Ontario, the indenture is inserted almost in its entirety as follows:

"This Indenture made this fourth day of June in the year of our Lord, One Thousand Seven Hundred and Ninety-five. Witnesseth that. . . in the province of Upper Canada hath of his own free and Voluntary will and by the consent of .....his chosen Guardian, of the same place, ...Bound himself Apprentice unto..... of the Town and province aforesaid, to be taught the mistery or occupation of agriculture which he, the said.....followeth and with him as an Apprentice to dwell and continue and serve from the day of the date hereof until the full end and term of Five Years & Ten Months from thence

[4]Kindly loaned by Inspector F. P. Smith of Kingston to Professor W. E. Macpherson of the College of Education, Toronto, who called the attention of the writer to it.

next ensuing and fully to be completed and ended. During all which term of Five Years and Ten Months, the said Apprentice, His said Master, will and faithfully shall serve, his secrets keep, his lawful commands everywhere, gladly obey, hurt to his Master he shall not do nor wilfully suffer to be done by others, but of the same to the utmost of his power, shall forthwith give notice to his Master. The Goods of his said Master he shall not embezzle or waste, nor them lend without his consent, to any. At Cards, Dice or any other unlawful Games he shall not play. Taverns or Ale houses he shall not frequent. Fornication he shall not commit. Matrimony he shall not contract, from his Service he shall not at any time depart or absent himself without the said Master's leave but in all things as a good and faithful Apprentice shall and will Demean and behave himself towards his said Master and his, during the said term and the said Master his said Apprentice the mistery or occupation of Agriculture which he now followeth with all things thereunto belonging, shall and will Teach and Instruct in or cause to be well and sufficiently taught after the best way and manner that he can. And shall and will also find and allow unto his said Ap-

prentice sufficient Meat, Drink, Washing, Lodging and Apparell and all other necessaries, fit and convenient for such an Apprentice during the term aforesaid and at the end of the said term shall and will give or cause to be given, one yoke of Two Year Old Steers, One Heifer with calf, Also one full suit of every day clothes and one other full suit of Sunday Clothes, Likewise to teach him or cause to be taught, to read, write and Cypher as far as the Rule of Division and for punctual performance of all and every of the said covenants & agreements the said parties Bind themselves to each other by these presents.

Witnesseth whereof they have hereunto, Interchangably set their hands and Seals, the day and year above written.

Sealed and Delivered }
In presence of us }

.....

.....

.....(Seal)
.....(Seal)
.....(Seal)".

Here the names of those concerned are signed except that of the young man who was able only

to make his mark. That he, during the term of his apprenticeship, received at least some instruction in writing, is shown by the fact that at the end of the time he was able to attach his signature in a well written hand to a receipt on the reverse side of the agreement as follows:

"Recd. from.....in full of all demands as specified in the written Instrument of writing to my full satisfaction, as witness my hand this 31st day of March, 1801.

Witness present.....(Name)....."

Another of the early attempts to give instruction related to agriculture was in connection with the Indian Mission Schools. One of the first to give this, was a young man by the name of Egerton Ryerson, who afterwards was to wield such an important influence in shaping the educational affairs of this province. The beginning was made when he, a young man of twenty-three, took charge of the Indian Mission and school at the Credit River west of Toronto, at which place he commenced his labours in the middle of September, 1926.[5]

Mr. Ryerson, previous to going to the Credit, had had some experience both in farming and in teaching. He had worked on the home farm

[5]Burwash, Nathaniel, *Egerton Ryerson*, p. 21.

until he was a young man, after which he had taught school in his native county of Norfolk, in the old London District, in 1821 and 1822, when he acted as usher (assistant teacher), under the headmaster, his eldest brother, Reverend George Ryerson[6]. Later, he became a local preacher, and on his own suggestion was sent by the Methodist Board to take charge of this Indian work.

After going to the settlement he collected the means necessary to build a house of worship and school-house, showed the Indians how to clear, fence in, "plow and plant their first wheat and corn fields," and called out the school boys to go with him to cut, pile, and burn the underbrush in and around the village.[7]

Reverend William Ryerson, who visited the Credit Mission in March, 1827, states that while there he visited the school and found that there were about forty pupils on the list. When he was there they were fencing the lots in the village in a very neat and substantial manner. On his arrival at the Mission he found, about half a mile from the village, his brother Egerton stripped

[6]*Ryer. Mem. Vol.* (Hodgins, J. George, *Ryerson Memorial Volume*), p. 120.

[7]Ryerson, Egerton, *The Story of My Life*, p. 60.

to the shirt and pantaloons clearing land with between twelve and twenty of the little Indian boys "who were all engaged in chopping and picking up the brush." To him it was an interesting sight. Egerton told him that he spent an hour or more every morning and evening in this way for the benefit of his own health and the improvement of the Indian children.[8]

Until the end of his abode with these people he put forth his best efforts at instructing them. In his Diary, dated "May 13th," [1827], he wrote: "I spent the last week in assisting the Indians in their agricultural pursuits. They are teachable, willing, and apt to learn."[9] In a letter written to Lord Glenelg, at a later date, telling of his sojourn with these Chippewa (Ojibway) Indians, Mr. Ryerson stated that he had "toiled every day, month after month, in instructing them in religion, horticulture, agriculture, domestic economy, etcetera".[10]

In 1828, Mr. Egerton Ryerson became associated with Reverend William Case who was stationed with the Indians at Rice Lake, near

[8] *Ibid.*, p. 69.

[9] *Ibid.*, p. 73.

[10] *Doc. Hist.* (Hodgins, J. George, *Documentary History of Education in Upper Canada*), Vol. IV, p. 125.

Cobourg. Mr. Case, also, was interested in the Indians learning the art of farming. After going to New York, in March, 1828, to solicit aid on their behalf, he wrote from there to Mr. Ryerson stating that: "The Indians should be encouraged to cultivate their Islands." They should be kept at school and instructed in their wordly concerns.[11]

These attempts to instruct the Indians and to help them in their "agricultural pursuits" were continued year after year, receiving greater attention until not only the church, but also the government of the province, aided the movement. In a report in the year 1830, Sir John Colbourne stated that certain Indian tribes had been placed under the charge of a Superintendent of the Indian Department. Agricultural implements had been procured for them, experienced farmers had been engaged to instruct them, and school masters appointed to educate their children.[12] In 1836-1837, a "Manual Labour School," upon a small scale, was started at Alderville, near Rice Lake, under the superintendency of Reverend William Case. In his "Jubilee Sermon," Mr. Case stated that ex-

[11] *Doc. Hist.*, Vol. II, p. 123.
[12] *Doc. Hist.*, Vol V, p. 289.

tensive brick buildings, assigned to the Indians by Sir John Colborne, had been erected for the education of the children who were settled there. The buildings consisted of comfortable dwelling houses, a school-house, and barns; at the place were cattle, farming tools and a saw-mill. Two hundred acres of land had been set apart as "a farm for improving the scholars in the business of agriculture."[13] When reporting about the Mississaga Indians of Alnwick, about fifteen miles north-east of Cobourg, near Rice Lake, Mr. Case wrote: "The boys are taught in the same branches as the girls,. . .and, at stated hours, in the business of farming. . .For this purpose a Model Farm of fifty acres in extent is provided."[14]

During this period, Lord Glenelg, the Colonial Minister, wrote to Sir George Arthur, Lieutenant Governor of Ontario, in part as follows: "I recommend to your consideration the means of encouraging and promoting among the Indians the pursuits of Agriculture."[15]

In a subsequent despatch to Sir George Arthur, dated the 22nd of August, 1838, the same gentleman stated that the first step to the

[13] *Doc. Hist.*, Vol. IV, p. 125.
[14] *Doc. Hist.*, Vol. V, pp. 294-295.
[15] *Ibid.*, p. 290.

real improvement of the Indians was to gain them over from a wandering to a settled life. The second important object to be obtained was the establishment among them of schools with competent teachers—schools affording elementary instruction, not only in the common branches of education but "in the rudiments of Agriculture and Mechanics."

In order to stimulate the exertions of those who attended the schools, it was suggested that it would probably be advantageous that periodical examinations should take place, "accompanied by public trials of skill in Agriculture." On such occasions, prizes should be distributed to those who had shown "peculiar diligence or ability."[16]

About this time the provincial government began to take a greater interest in the common schools of the province. Abroad, great advances were being made in education. A number of the educational and political leaders who had some knowledge of this, and who believed that Ontario's system of education was inadequate, began an agitation for its improvement. One of these, Dr. Charles Duncombe, expressed the opinion that with regard to this improvement,

[16]*Doc. Hist.*, Vol. IV, p. 123.

"there is, in this province, very great want."[17] The agitation led to action. In 1835, the House of Assembly, during its educational deliberations appointed in April of that year three of its members, Doctors Charles Duncombe, T. D. Morrison, and William Bruce, a committee to enquire into the system and management of schools and colleges in the United States and bring in a report thereon.[18]

Dr. Duncombe visited the United States, studied the school systems of Boston, New York, Albany, and Philadelphia, as well as those of the Middle and Western States, and "amassed by inquiry and by reading, considerable information as to the educational policies of different European countries, notably Scotland, France and Prussia."[19]

In 1836, he presented his report[20], including not only a statement of the conditions abroad, but his opinion of, and suggestions regarding, the improvement of the common schools of Ontario. With the report he suggested the draft of a Common School Bill[21], the Education Bill of 1837.

[17] *Ryer. Mem. Vol.*, p. 48.
[18] *Doc. Hist.*, Vol. II, p. 288.
[19] Coleman, H. T. J., *Public Education in Upper Canada*, pp. 64-65.
[20] *Doc. Hist.*, Vol. II, pp. 289-308.
[21] *Ibid.*, pp. 309-322.

The provisions of this measure included several advanced suggestions with regard to education in Ontario. It anticipated the normal schools of a later period, provided for inspection of schools, suggested a General Superintendent of Education for the province, and authorized trustees "to raise, levy and collect the moneys, as voted, and therewith to purchase or lease a lot or parcel of land, farming utensils, seeds, grains and grasses for the use, benefit, and behoof of that District, for the use of the Teachers of the School, or to be annually apportioned among the scholars of the School; or otherwise employed and occupied, for the profit and instruction of the School or parts thereof, in horticulture, agriculture, or otherwise, growing plants, fruits, grasses and grains, as the Trustees, together with the School Teacher for the time being may think fit."[22]

This appears to be the first school bill in Ontario which refers to agricultural work in our schools. But Dr. Duncombe, in suggesting it, was far in advance of his time. In fact he did not remain in office long enough to attempt to put his proposal into operation. The rebellion in Upper Canada breaking out at that time,

[22] *Ibid*, p. 322.

centred attention in another direction and within a year Dr. Duncombe was himself a "proscribed rebel." Aside from this, however, the people of the province were not ready for agricultural education in the schools. "Children, as well as parents, were absorbed in a struggle with an environment from which, for years at least, little was to be gained beyond a mere livelihood."[23] As soon as the boy on the farm was old enough, he had to do his part. At an early age he was "initiated into the mysteries of 'hunting' the cow, 'branding' and 'niggering' in the new clearings, 'minding gaps', driving oxen, blazing away with the old flint-locks at predacious crows and hawks, and of numerous other employments, many of which are now rendered unnecessary by the march of events."[24] "The boy of ten years, since he could drive a yoke of oxen, was put to work." "To be able to handle the axe and the plow was a more necessary accomplishment even than to read, write and cipher."[25]

The teachers, also, were not prepared to teach the subject. While there were some excellent teachers, the majority of those who attempted

[23]Coleman, H. T. J., *op. cit.*, p. 68.

[24]Boyle, David, *Township of Scarboro*, p. 177.

[25]Coleman, H. T J., *op. cit.*, p. 68.

to instruct the young were untrained, poorly paid, and generally of a very inferior class. The old-time perceptor was often an old or disabled soldier, a decayed tailor, a drunken makeshift, or an otherwise unsuccessful anybody who was given a position partly out of sympathy, partly out of a sense of duty, to keep him from becoming a pauper and a care upon the community. Seldom had he knowledge of educational principles. His dogma was "no larnin' without lickin'." He entered and left the school a tyrant.[26] His knowledge was limited and his curriculum narrow. "Anything beyond the three R's was generally taught by itinerants."[27]

How utterly useless, then, would it have been to attempt, with any degree of success, to carry out such a regulation concerning agriculture as that suggested by Dr. Duncombe. The existing conditions in the common schools were apparently taken into consideration by the commission, with Dr. John McCaul, chairman, appointed in 1839, to enquire into the state of education in Upper Canada in the common and higher schools and bring in suggestions according to its findings. While recommendations concerning other mat-

[26]Boyle, David, *op. cit.*, p. 178.

[27]*Ryer. Mem. Vol.*, p. 55.

ters were made, no mention, even, appears to be made of agriculture[28]. Nor does it appear to be mentioned in the school acts of 1841[29], and 1843[30].

Outside the common schools, a minor effort to introduce some agricultural education in Ontario about this time is indicated in the "Prospectus" of a proposed "Industrial School" for the city of Toronto. In the prospectus in 1845, it was stated that each pupil would be taught a trade, and all would be occasionally employed "in Agriculture and Gardening." One-half of each day, except Sunday, would be spent in suitable labour, and the other half in the school room.[31]

[28]*Hist. Ed. Pap. and Doc.* (Hodgins, J. George, *Historical Educational Papers and Documents of Ontario*), Vol. I, pp. 112-124.

[29]*Doc. Hist.*, Vol. IV, p. 51.

[30]*Ibid.*, pp. 251-262.

[31]*Doc. Hist.*, Vol. V, pp. 270-271.

Chapter II

RYERSON'S EARLY YEARS AS SUPERINTENDENT

IN 1844, Egerton Ryerson (by this time, Dr. Ryerson) was appointed Superintendent of Education for Upper Canada. Shortly after assuming office, he visited the United States and Europe for the purpose of studying their systems of education. His interest in agricultural education at that time, is shown in the accounts given in his letters home, and in his report and recommendations to the government upon his return. In October, 1845, he wrote to the Governor-General's Private Secretary, an account of his visit to some educational establishments on the continent, in which he mentioned descending the River Elbe to Dresden where he saw that what he had read about the excellency of the German schools was no exaggeration. This he was enabled to learn more perfectly the following week at Leipsic, where he found "a perfect System of Schools,—leading the one to the other, from the School of the Infant up to

the University, and providing for a Mechanical, Agricultural and Commercial, as well as an Elementary and Scholastic Education,— a system, from the beginning to the end, parental, harmonious and complete." He contended that "the amplification and adaptation of such a System to our Country's wants" was what we needed, and that it would help "develop our Country's resources, and raise us, as a people, to a high point of civilization."[1] He then proceeded to Switzerland where he visited the universities, academies, and agricultural schools. The Fellenberg Institute, at Munchenbuchsee, was one of the most famous of these latter schools. It had been founded about the beginning of the nineteenth century. A large estate, of six hundred acres, known as Hofwyl, had been purchased by Fellenberg in 1799, and had become part of the institution. In 1804, Fellenberg associated Pestalozzi with his work for a time and undertook the education of poor children. In 1808, under the charge of Wehrli, the institution developed into the agricultural or poor school, the farm being used for physical and moral influences and to help defray the expenses of the school. For poor children the

[1] *Ibid.*, pp. 243-244.

Institute was vocational. As a help for the farmer its work included "the manufacture and repair of agricultural implements."[2]

In a subsequent letter, Dr. Ryerson told of his visit to the schools in Dublin, Glasgow, and Edinburgh, where he had the opportunity of inspecting, in the first mentioned city, what he considered to be by far the best normal and model school which he had seen anywhere either in Great Britain or the United States. The Irish National Board appealed to him as having pre-eminence over all similar bodies in the British Dominions. The organization at the agricultural model school, where there was a master whom he considered to be a scientific and practical farmer, attracted his special attention. "The master," he wrote, "assumes responsibility of all expenses. . .lectures on agriculture in all its grades, and illustrates his lectures by the cultivation of his farm"—the model farm at the place, which consisted of thirty-two Irish acres. The pupils in their course of training were required to perform every kind of work on the farm—sowing, planting, harvesting, taking care of vegetables for the winter, even to milking the cows, and managing

[2]Munroe, Paul, *Cyclopaedia of Education*, Vol. II, pp. 590-591.

the dairy. "The School," he added, "secures a net gain, over and above all expenses, of from One to Two Hundred pounds a year."[3]

After his return to Ontario, Dr. Ryerson prepared a masterly and detailed report of his investigations abroad. In Part I of the Report, presented in 1846, we find: "Our Provincial system of Education should be Universal; it should be practical. . .it should provide for the efficient teaching of the following subjects."[4] Fifteen in all are mentioned, "Agriculture" being one of them.

Commenting upon agriculture a little later in his report, are these statements: "Agriculture—the most important department of human industry—has not as yet been introduced in any form whatever as a branch of elementary Education in our Schools. The Legislature has given some pecuniary assistance, and Societies have been formed with a view to encourage experiments and promote improvements in Canadian Agriculture; but experiments, without a knowledge of principles, will be of little benefit; and improvements in the practice of Agriculture must be very limited until the science of it is

[3] *Doc. Hist.*, Vol. V, p. 246.

[4] *Doc. Hist.*, Vol. VI, p. 142.

studied. There is a reason to believe that the remarks of a Boston writer are too applicable to Canada: 'How many farmers in Massachusetts know anything of the nature of their soils, so as to be able to apply the proper mode of tillage? Scarcely one, perhaps a few, but the great majority know absolutely nothing scientifically about the subject. . . This I regard as the most glaring defect in our system of popular instruction, and one which demands, from the magnitude of the interests involved, the immediate and earnest attention of all the friends of education'."

It is interesting to note what Dr. Ryerson thought should be included in the course in agriculture. Under the heading, "What should be taught," we find: "The agricultural pupil should be made acquainted with the different kinds of soils, and their characteristic qualities; the modes of qualifying and improving each; different kinds of manure and other improving substances; the effect of different soils on different crops; rotation of crops, and the best methods of producing and securing them; agricultural implements and the machines which have been invented to save labour; different kinds of stock, the various modes of feeding them, with the

economical advantages of each; the method of keeping full and accurate accounts, so that he may be able to ascertain precisely not only his gross profits and losses, but the profit and loss in each detail of the system, and from each field of his farm. Of course, specimens, models, pictures, or drawings, should be used in teaching these Elements of Agriculture. Lavoisier, the celebrated Chemist, (says the Bibliothèque du Chemiste)", by following an enlightened system, "is said to have doubled in nine years the produce in grain of his lands, whilst he quintupled the number of his flock."[5]

A little further along in his report he referred to the lessons and exercises in agriculture which were given in many schools abroad. This "important branch of instruction," he wrote, "is receiving increased attention, especially in France and England." The Agricultural Institute, and Model Farm in connection with the Dublin National Normal School he reported as "admirable." Upon his visit there he found the Master preparing a book on the subject for the use of the schools. This book was to be published under the direction of the Irish National Board as one of their excellent series of

[5] *Ibid.*, p. 192.

school books.[6] His comment with regard to the advisability of introducing agricultural education into our grammar schools is referred to in the chapter on agriculture in the high schools.

Soon after the publication of his report, Dr. Ryerson drafted his first common school bill, which, during the sessions of the Legislature of 1846, became the Common School Act of 1846. This important School Law, founded upon his report, provided, among other things, for the teacher "to teach diligently and faithfully, all the branches required to be taught in the School according to the terms of his engagement with the Trustees, and according to the provisions of this Act."[7]

But Dr. Ryerson was not slow in seeing that the people in Canada were not ready to receive all his advanced suggestions. Public opinion must be educated. The parents, trustees, teachers, and educational leaders must be aroused. He had been a missionary of the gospel, he must now become a missionary of the new education. Hence he carefully prepared and sent out circulars to Municipal Councils, District Superintendents, school trustees, and teachers. He

[6] *Ibid.*, p. 197.

[7] *Ibid.*, p. vi, ix, 67.

published his educational paper, *The Journal of Education*[8], as a means of communication with teachers, and leaders in education, and invited these and others interested to have frank discussions with himself on matters relating to education. As Superintendent of Education, during the early years of his office, he made a practice of visiting the various districts, and teachers' gatherings, and of giving addresses on educational matters. He thus came in touch with the people, disseminated his views, and attempted to educate all to his ideas. One lecture which he delivered during his official visit to these various Municipal Districts in Upper Canada during September, October, and November, 1847, was entitled, "The Importance of Education to an Agricultural People."

In this lengthy address he summed up many of his views regarding educational matters. He defined education and spoke of its advantages, he emphasized the fact that farmers, like others, would be much benefitted by a good education, he dealt with such topics as the practice of agriculture as compared with other pursuits, the economy of intelligent scientific farming, loss and waste on the farm chiefly caused by ignor-

[8]*Doc. Hist.*, Vol. VII, p. 117.

ance, knowledge of agricultural chemistry helpful in farming, good farm machinery helpful for success, and things necessary for the farmer to know can be taught in our schools. He referred to a proposal recently introduced into the Legislature to establish an agricultural school and model farm in connection with the improved grammar schools of each district as being an important step in the direction of educating the rural population. Farmers should be educated to enable them to occupy their proper positions of power and influence in comparison with the other classes of the population, and to enable them to enjoy the contentment and happiness of which agricultural life is susceptible.[9]

This lecture apparently created much interest and made a very favourable impression upon the large number who heard it, but it was too early then for the people to adopt his suggestions, especially those relating to agricultural education.

[9]The whole of this comprehensive address is printed on pages 140-148 of the Documentary History, Vol. VII.

Chapter III

AGRICULTURE IN THE FIRST NORMAL SCHOOL

AS a definite means of helping to carry out his plans in his new superintendency and of bringing education in Ontario up to a higher standard, Dr. Ryerson established a normal school for the training of his teachers. This first normal school in Ontario was opened in Toronto, on November 1st, 1847. It was an integral part of Dr. Ryerson's system of education for Upper Canada. "The comprehensive grasp of his mind, his clear judgment, and keen observation revealed to him at once both the important defects in the existing system," and the "real causes" of these defects. If they were to be overcome, first of all "properly qualified teachers must be provided." That they might receive the training he desired, it appeared advisable to have a school that could be directed and controlled largely by himself.

As he had been impressed, when abroad, by the systems of teacher-training which he had

seen, it is but natural that he should incorporate some of the ideas gathered there into his own system of education. Since practical education, as in agriculture, was stressed in some of the European countries, especially in Ireland, we might expect him to include it in the course of studies for his future teachers. We are not surprised, therefore, to find it one of the subjects in the programme of lectures. An outline of the course reads as follows: "Agricultural Chemistry, comprehending the nature of the Substances which enter into the Composition of Vegetables; the sources from which these substances are derived; the origin and composition of soils; the conditions necessary for producing a luxuriant vegetation, et cetera."

The following condensed scheme affords an illustration of the time of each lecture on the days mentioned:

"Mondays, Wednesdays, and Fridays.
7-8 P.M. First and Second Division, Agricultural Chemistry.
Tuesdays and Thursdays.
7-8 P.M. Agricultural Chemistry."[1]

Dr. Ryerson had made an excellent choice in selecting as Principal of his Normal School,

[1] *Doc. Hist.*, Vol. VII, p. 102.

Thomas Jaffray Robertson, M.A.[2] He desired, also, a good assistant who could teach agricultural chemistry. In his search for such a one, he looked towards Ireland where was a man who appeared to be qualified for the position. After some correspondence, he brought the matter before the Board of Education for Upper Canada. In the proceedings of that Board, dated February 15th, 1848, is the following item which proposed: "That Mr. Henry Youle Hind be appointed Mathematical Master and Lecturer in Chemistry and Natural Philosophy in the Normal School for Upper Canada, at a salary of Two Hundred and Fifty Pounds (£250) currency per annum—to commence from and after the first of April next."[3] Mr. Hind accepted the appointment, came to Canada, and took charge of the department to the satisfaction of Dr. Ryerson, the Board, and others concerned. In March, 1848, a communication was received by the provincial Board of Education from Mr. Hind, proposing a scheme of drainage for the grounds, and outlining a series of agricultural experiments to be carried out on a portion of the land attached to the Normal School, the Govern-

[2]Burwash, Nathaniel, *op. cit.*, p. 173.

[3]*Doc. Hist.*, Vol. VII, p. 276.

ment House, which might be set aside for the purpose. The proposed list embodied over fifty different experiments for the purpose of testing the value of manure upon various vegetables and grains which might readily be grown by the people of Ontario; for ascertaining the results of sub-soiling and good drainage; and for trying to determine the amount per acre of certain crops which might be grown to advantage by the agriculturists of the country.

In the communication, Mr. Hind also entered into an explanation of the difference between the climate of Canada and that of the British Isles, suggesting that this would make a difference in the treatment for the crops. He also called attention to the necessity of drainage and sub-soiling. Among the experiments which he suggested were those relating to wheat, oats, barley, potatoes, turnips, peas, beets, artichokes, Indian corn, and sunflower. The sunflower, he added, as well as a plant called safflower, should do well in this country as the climate is quite suitable.[4]

This proposal regarding drainage and experi-

[4] *Ibid.*, pp. 276-277.

For Mr. Hind's letter and list of experiments see also *Journal of Education*, Vol. I (1848), pp. 108-112.

ments was considered favourably, and the Chief Superintendent was authorized to incur the necessary expense. It was also ordered that a thousand copies of a table prepared by Mr. Hind entitled, "A Comparative View of the Exact Chemical Constitution of Certain Soils, Vegetables and Manures," be printed for the use of the pupils of the Normal School.[5]

Mr. Hind was enthusiastic regarding the benefits of an agricultural education for our people. In the *Journal of Education*, during 1848, there appeared a series of four articles by him on "Agricultural Education in Upper Canada," in which he spoke of the benefits of such an education to the people of Canada, discussed the value of experimental work for determining the proper rotation of crops and for other farm practices, pointed out the benefits to be derived from the testing of various kinds of grain, vegetables, and manures, and advocated the teaching of the subject in the schools. "It therefore," he wrote, "becomes an object of extreme interest to the rural population of Canada, that their children should be educated in the theory and practice of Agriculture."

[5]The elaborate table will be found in Vol. 1, pp. 168-170, of the *Journal of Education*.

Referring to the Table on "A Comparative View of the Exact Chemical Constitution of Certain Soils. . ." he stated that what he had written would afford a sufficiently correct idea of the mode in which the important subject of agricultural chemistry might be adapted to the circumstances of common school tuition.[6]

The Chief Superintendent's Report for the year 1847 included a report on the subjects of instruction in the Normal School. In outlining the work done by the masters he stated that the mathematical master gave instruction in, among other subjects, the science and practice of arithmetic, animal and vegetable physiology, elements of astronomy, and of agricultural chemistry.[7] While calling attention to the last mentioned subject, he stated that in "Agricultural Chemistry, that important science," the subject was treated with special reference to the soils, climate, and productions of this country, illustrating practically the mode in which experiments of an agricultural character should be conducted. During the summer session, upwards of fifty agricultural experiments had been

[6] *Journal of Education*, Vol. I, pp. 103-107; 166-172; 198-202; 225-228.

[7] *Hist. Ed. Pap. and Doc.*, Vol. V, p. 45.

carried out on the grounds attached to the Normal School, under the direction of the mathematical master, whose taste for horticulture and agriculture was no less ardent than his talents as a mathematician and lecturer were pre-eminent. The grounds had been placed under his immediate care and the students had derived no small advantage from his refined taste and rural sympathies.[8]

That the efforts in connection with the experiments in the garden met with some success by way of production is indicated by the minutes in a report of the proceedings of the Board. At a meeting of that body, held on October 6th, 1848, it was ordered: "That, the products of the Fruit and Vegetable garden be disposed of, to assist in defraying the expenses of the Agricultural Department of the Normal School." It was also ordered that "a stove, et cetera, be fitted up adjoining the Conservatory, so as to preserve the flowers and plants there, during the winter."[9]

On the same date occurred another item of interest in connection with agriculture. Notice was given that a "Public Examination" of the

[8] *Doc. Hist.*, Vol. VII, p. 173.

[9] *Ibid.*, p. 282.

students of the Normal School would be held on "Wednesday and Thursday, the 11th and 12th inst." to commence each day at 11 o'clock. In the time table for Thursday we find that from 12 to 1 o'clock there was to be the examination on agricultural chemistry and animal physiology.

As Lord Elgin, the new Governor-General for Upper Canada, took a keen interest in the welfare of his people, and as Upper Canada was largely an agricultural province, he highly approved of the course pursued by the Provincial Board of Education in making agriculture a part of the instruction given in the Normal School. Being desirous of encouraging the study of the subject, he offered, in 1849, two prizes—one of £5 and the other of £3, in books—to be awarded to the two students of the Normal School who should, at the end of the session, acquit themselves the best in an examination in the subject.[10]

The Board, previous to acknowledging officially the generous offer of His Excellency, requested the masters of the Normal School to submit to the Chief Superintendent for their information, a scheme by which the examination for the prizes should be conducted.[11] This was

[10] *Doc. Hist.*, Vol. VIII, p. 257.

[11] *Ibid.*, pp. 250-251.

done. The regulations submitted were amended and adopted as follows:

I. "All Teachers in Training, who, at the close of the Winter Session for 1848-9, are acknowledged Students in the Normal School, and who may have been such for a period of not less than one Session, shall be entitled to compete for the Prizes.

II. That the examination take place on the 9th day of April, 1849, in one of the Lecture Rooms of the Normal School.

III. That the subjects of Examination be the Science of Agriculture, comprehending Agricultural Chemistry, the Chemistry of Vegetables and Animals and Practical Farming, in such manner as shall exhibit the greatest proficiency in this Department of Study and the greatest aptitude in imparting to the young the knowledge they have acquired.

IV. That the examination be conducted by means of printed questions, previously prepared for the purposes, being placed before each Candidate, and that answers, in writing, to such questions be given by the respective Candidates, who shall, moreover, be subjected to such oral Examination as shall test their aptitude for practical teaching in the subject."

These and several other regulations, eleven in all, definitely set forth the time allowed for the candidates, the arrangement for examiners, marks, reports, and other conditions upon which the prizes were to be given.

The Board also ordered, that, in addition to the Masters of the Normal School, other gentlemen, namely: Professor H. H. Croft, Francis Neale, Esquire, M.A., and Messieurs E. W. Thompson, President of the Home District Agricultural Society, and George Buckland, Lecturer in Agricultural Chemistry in King s College, be requested to act as examiners; also, that the grateful acknowledgement of the Board be offered to His Excellency, the Governor-General, for his generous grant of prizes.[12]

The regulations being adopted, and arrangement for the examinations being made, a series of questions, full and comprehensive, was prepared by the examiners.

As the examination paper, composed of these questions in agriculture, is of historic interest (being the first of its kind prepared for teachers-in-training in a school intended solely for giving instruction in the elementary branches of an English education) it is inserted in full in Appendix A.

[12] *Ibid.*, pp. 252-253.

By reference to the paper it will be seen that it is in two parts, consisting of thirty-three questions each. Part I deals chiefly with chemistry, physics, and botany as related to agriculture, while Part II, besides covering somewhat the same ground, stresses more particularly the practice and theory of agriculture, physiology, and other work. The total value of complete answers to the questions was fixed at 700 marks.

Following the sixty-six questions was a note which read as follows:

"Nota Bene—An oral examination will take place after the time for answering the foregoing questions has elapsed, for the purpose of ascertaining the relative knowledge of the candidates, on the subject of Practical Agriculture, as well as to test their aptitude to communicate to pupils a knowledge of Agricultural Chemistry, in all its branches."[13]

Thirty-two students, including several women, competed. The two who won the prizes were farmers' sons and had been teachers before coming to the Normal School.

As the Governor-General was unable to be present at the time of the distribution of the

[13] *Ibid.*, pp. 258-260.

prizes, Chief Justice Robinson represented him and presented them to the winners. At the October examination, Lord Elgin himself was present and took part in the proceedings, delivering "one of his characteristically practical and notable speeches." He spoke of his interest in elementary education, of the semi-annual bestowal of prizes, and, referring to the agricultural teacher, stated that if he were "at all disposed to criticise any expression of Mr. Hind, it would be that which seemed to imply that Agricultural Chemistry was rather more of the ornamental than of the useful, and would not likely be very generally introduced into the Common Schools of the Country." He, Lord Elgin, thought differently. He regarded it "far more useful" than otherwise.[14]

The prizes were given semi-annually and formed an important feature in connection with the Normal School examinations in agriculture until the end of Lord Elgin's term of office.[15]

Before leaving Upper Canada, Lord Elgin visited the Normal School on October 3rd, 1854. Here he was addressed by the student body. In his reply he stated that the end the prizes

[14] *Ibid.*, pp. 261-262.

[15] *Jubilee Report Of the Toronto Normal School*, p. 43.

were designed to promote was improvement in agricultural science. If that end had been attained, all he had expected was fully satisfied. He had not designed the prizes for women, but since they had been successful in winning some of them, he did not regret that he had not restricted them to the other sex.[16]

On the establishment by Lord Elgin, of the prizes for proficiency in agricultural chemistry, it had been deemed expedient to use part of the Normal School grounds as an "Experimental Model Farm" so that the students might have the opportunity of seeing practical tests, illustrative of the statements and theories of their agricultural teacher on the topics discussed, carried out.[17] When the new Normal School was erected in 1851, still more attention was given to the grounds. As the buildings were erected on an entire square consisting of nearly eight acres, it was decided to devote two of these to a "Botanical Garden" and three to agricultural experiments. It was thus expected that the grounds would contribute to illustrating the teaching of agricultural chemistry and vegetable physiology on a scale sufficiently large for the

[16] *Doc. Hist.*, Vol. XI, pp. 171, 179.

[17] *Hist. Ed. Pap. and Doc.*, Vol. II, p. 42.

purpose of teaching "the culture and productions of a Botanic, Fruit, and Vegetable Garden, a rotation grain and grass Farm, as well as a small Arboretum of native and foreign specimens."[18] Mr. William Mundie, a landscape and practical gardener of Hamilton, was selected to submit a plan of the grounds and was later appointed superintendent of them.

His report to the Superintendent of Education of the first year's operations, sent in on October 25th, 1853, showed that considerable work had been done, and that the grounds were in good condition. Most of the trees and shrubs had taken well, the grass remarkably well; the annuals and other flowers had made a good showing during the whole season. Thirty-seven specimens of grains, roots, vegetables, and fruits had been prepared and sent to the secretary of the Agricultural Association for exhibition at their large annual show held at Hamilton, where they attracted much attention from a large number of the visitors present. The judges, in reporting, stated that they had much pleasure in recommending the collection to favourable notice, and considered them in every way worthy of the institution and well calculated to

[18] *Doc. Hist.*, Vol. XI, pp. 21, 64-65.

convey both useful and interesting information to the students. It was "a fine collection" and "highly commendable."[19]

As this was probably the first "Experimental Model Farm" in the province connected with such an institution of learning, a plan of the grounds is shown in Appendix B. It is of interest to see how they were laid out, and to note some of the varieties of grains, roots, and vegetables grown here three quarters of a century ago.[20]

The following year, in December, a full and detailed report of the culture of the grounds was given by Mr. Mundie. Upwards of two hundred specimens of foreign and native herbaceous plants and roots had been collected and planted. In the vegetable garden, a large number of the best and newest vegetables had been tried out with good success. In the fruit garden, strawberries and small fruits produced large crops, a few specimens of pears, particularly the Bartlett, Stevens' Genses, White Doyne, and Belle Sucrative had produced and ripened some very fine fruit. In the agricultural department the list was large. As an indication of the varieties of grains, roots, vegetables, and hay grown, and of the type

[19] *Ibid.*, pp. 21-22.

[20] *Ibid.*, p. 20.

of experiments carried on, a partial list is given:

Fall Wheat—White Flint: one-eighth acre sown after peas, without manuring—44 bushels per acre.

Spring Wheat—Cape Root: after Indian corn—18 bushels per acre.

Spring Wheat—Fife sort: after Indian corn—36 bushels per acre.

Barley—Common: after potatoes—51 bushels per acre.

Barley—Common: after turnips, with slight dressing of street-scrapings—57 bushels per acre.

Cabbage—Quintal, St. Denis, Savoy, Red Dutch. Quintal was the most profitable. The Drumhead Cabbages: hardy and luxuriant growers.

Potatoes—Pink Eyes: 380 bushels. Irish Cups: below previous year's average by 6 bushels, it being 410 bushels.

Grass Varieties: one acre (three cuttings) 4½ tons dry hay. Rye-Grass and Red and White Clover produced the best and greatest weight of hay. Lucerne, Timothy, and White and Red Clover came next.

The proceeds of the sales of the produce of the grounds that year amounted to about $168.[21]

[21]The full report, consisting of nearly two pages of fine print, may be found in the *Doc. Hist.*, Vol. XI, pp. 173-175.

The work in agriculture in the Normal School was continued year after year, being taught as fully as time would permit. During Dr. Ryerson's régime, he, as Superintendent, kept in close touch with what was going on, and continually encouraged the efforts in that direction. After over twenty years had elapsed, his sympathies were apparently stronger than ever in favour of the subject. He then made the suggestion that greater attention be given to it. In a letter dated at Toronto, the 12th of November, 1869, he wrote to the Commissioner of Agriculture, stating that he (the Commissioner) would observe from the last paragraph of the Superintendent's last annual school report that it was proposed to invest "the teaching of our Public Schools with a more practical character, in connection with employments, Manufactures and Agriculture of the Country, especially the latter." To make the teaching of agriculture more practical it was necessary that more effectual provision be made in the Normal School for qualifying teachers to teach the subject. Something had been done in the case of applying chemistry to agriculture, but as there were but two masters in the Normal School attempting to teach the same subjects that four to six were

doing in the normal schools in the United States and Great Britain, it was "impossible to give the prominence and thoroughness to the teaching of Agricultural Chemistry," that should be given it. He, therefore, submitted for the consideration of the Commissioner the proposal that "a sum not exceeding two thousand dollars" per annum be placed at the disposal of the Lieutenant-Governor-in-Council "for establishing, in connection with the Normal School, and under its Regulations, a Lectureship in the elements of Chemistry and Agriculture and of Natural History, with a view to making these subjects a part of the Course of Instruction in the Common Schools of the Country." He thought they could provide for the additional lectureship with their present accommodation, but if, on trial, it was found necessary to provide additional accommodation, he would later submit an estimate of the cost for the erection of a suitable agricultural lecture room and laboratory. This might become "the nucleus of an Agricultural School for the whole Country." In the meantime, until experience and the demands of the country required more, he proposed the simple additional lectureship.[22]

[22] *Doc. Hist.*, Vol. XXII, p. 44.

Shortly after this, the School Act of 1871 was passed. This wrought several important changes in the educational system of Ontario.

With these changes the Normal School kept pace. In accordance with Dr. Ryerson's suggestion, another teacher was appointed. In his remarks on the introductory operations of the new Act he stated: "An additional Master has been employed to give the instruction necessary for training Teachers, 'to provide for teaching in the Public Schools the elements of Natural History, of Agricultural Chemistry, of Mechanics and of Agriculture,' as required by the 13th Section of the new Act."[23]

[23]*Doc. Hist.*, Vol. XXIII, p. 131.

Chapter IV

ATTEMPTS IN THE UNIVERSITY

WHILE these efforts were in progress in connection with the common schools and the Normal School, similar ones were being made to introduce agricultural education into the University of King's College. According to Statute, a Chair of Agriculture was established in the University as early as 1844.[1] After its establishment, though, little seems to have been done in the subject for some time.

Memorials and petitions, however, soon began to come in to the Council of King's College, asking that agriculture have a place on the programme of studies. One of the first of these Memorials came on February 27th, 1846, from the Municipal Council of the Bathurst District, transmitted by the Honourable Dominick Daly, Secretary of the Province. After mentioning the "unspeakable advantages of a good education," referring to the fact that a large proportion of the people of the province were engaged in

[1] *Doc. Hist.*, Vol. VI, p. 115.

agricultural pursuits, and suggesting that the study of agriculture would be of "paramount importance to a numerous and useful class of the community," the Memorial continued:

"Your Memorialists, therefore, respectfully pray that King's College, at Toronto, may be made a Seminary for the Diffusion of Knowledge on the most liberal basis, and that a Chair therein may be assigned to a person well qualified to give instruction in Agriculture and Agricultural Chemistry and kindred Sciences." This was signed by Daniel MacMartin, Warden of Bathurst District, and dated at Perth, the 14th day of February, 1846.[2]

A reply was sent stating that a Chair of Agriculture had been established in the University, and that the Council did not consider it necessary to establish a separate one in agricultural chemistry.

On April 23rd, 1846, a petition was received from Messieurs Philip Austin and James Covernton, Officers of the Talbot District Agricultural Society, praying for the establishment of a Professor's Chair "on Chemistry, in the application to Agriculture" in the University of King's College and "also for the establishment of Model

[2] *Ibid.*, p. 115.

Farms." Another came the same month, from the Reverend R. McCosh and others of Paris, Upper Canada, praying that "an Agricultural and Commercial Chair be established." Also, in 1846, another from "Mr. Samuel Wood and others, Agriculturists, praying that provision be made for a Professor's Chair in Chemistry in its application to Agriculture, in the University of King's College, and for the establishment of Model Farms in each District."[3]

During 1848, and succeeding years, certain papers as *The Agriculturist and Canadian Journal* and *The Canadian Agriculturist*, kept up, by means of editorials and other articles, the agitation for agricultural instruction in the University. In an editorial in the number of February 1st, 1848, the former paper, under the heading "Agriculture in Connection with Colleges and Universities," referred to the success of the movement in various parts of the United States, especially in eastern colleges as Harvard and Yale, as well as in Ireland and Scotland, and to the fact that England was not lagging behind. As Agriculture was the great source of productive labour in Canada, it argued that it was important that those employed in it should thoroughly

[3] *Ibid.*, pp. 30, 33, 36.

understand the principles which governed the various operations on the farm, and be able to trace the effects to their true cause. Why should not the agricultural youth of the day avail themselves of the benefits to be derived from a knowledge so clearly revealed by a Davy, a Liebig, a Playfair, a Johnston, and a host of other worthies? The science of chemistry, botany, geology, and mechanics should be taught in those academies where the wealthy farmers' sons were being educated. The people should look to the Provincial University of King's College to set an example in that great national enterprise. A suggestion was also made that a "respectable farm, placed under proper management, in connection with this Institution, would have a very wholesome influence on the productive interests of this Province."

After discussing agricultural matters at some length, the article concluded by stating that soon it was the intention to lay the scheme before the public, and to call the attention of the new Parliament to the subject which it contended was of vastly greater importance to the country than any other single measure that could be framed.[4]

[4] *The Agriculturist and Canadian Journal*, Vol. I (Feb. 1st, 1848), p. 14.

In the number of February 15th, of the same journal, was a half page editorial, making a plea for a "Model Farm," and for a Mr. Buckland, an agricultural teacher of superior ability, whom, it stated, "We must not allow to leave the country." It was time, ran the editorial, to commence the discussion of the question whether they would have a Model Farm and School of Agriculture in the neighborhood of that city or not. They had heard from very good authority that it was in contemplation not to establish a Chair of Agriculture in the University. They, as the organ of the farmers of that part of Canada, imagined themselves to have a right to be heard by the members of a Legislature, the majority of whom were emphatically the representatives of farmers. One of the first, if not the first measure in importance, was the making of provision for at least one "Model Farm." Probably a more suitable person than Mr. Buckland could not be found, either on the other or on this side of the water, to take charge of such an "Institution."

In the same number was a letter from Mr. George Buckland, in which he asked permission to be allowed to state the objects for which he had been induced to come to this country. It

had been to procure an extensive and suitable farm where youth and young men intended for farming might be thoroughly instructed and trained in the theory and practice of agriculture. He closed by making an appeal for the support and interest of the people in the undertaking contemplated. In the issue of March 15th, was another editorial which stated that the editor was determined not to lose sight of that "great desideratum—a suitable Institution for the Education of Farmers' Sons in their Profession." The April, July, and August issues also contained articles and letters supporting and urging the project, and commending *The Agriculturist* for the stand it was taking.

Such an agitation seems to have been kept up for some years. In *The Canadian Agriculturist* of March, 1850, was a two-column editorial in which the writer, while still discussing the question, stated that he deemed it his duty to address the Legislature on the propriety of establishing an agricultural Chair in the University.[5]

After attention had been called to agricultural education in these and other ways, and interest had been aroused through the work in the

[5] *The Canadian Agriculturist*, Vol. II, p. 50.

Normal School, the Senate of Toronto University began to look seriously into the matter. Considerable discussion took place. There were those in the province who contended that the training received in the University should be along other lines than that of learning how to farm. Some had grave doubts as to the feasibility of the work being popular as a lecture course without the practical phase being emphasized more than could be done in an institution of that kind. Others, including Lord Elgin, were in favour of the movement, partly because the course at the Normal School had proved quite popular and helpful, but chiefly because Ontario was considered to be an agricultural province, and the subject for its own sake was worthy of a place on the curriculum of the highest educational institution in the province. Finally, as the Chair was regarded as eminently useful and popular to agriculturists, the Senate approved and adopted the report of the Caput and included the subject in the University Curriculum.

It was then decided to appoint a professor for the subject.[6] In response to advertisement, three candidates applied for the position and deposited

[6]McNab, G. G., *The Development of Higher Education in Ontario*, p. 74.

testimonials. On November 15th, 1851, after a "most careful examination of the documents," Mr. Buckland was selected to fill the Chair in question.

It was also decided to provide some land for the use of the professor. A committee was appointed to select a part of the University grounds of not less than fifty acres, to be set aside "for a term of not less than ten years, in connection with the said Chair of Agriculture"[7] for the purposes of an Agricultural Experimental Farm. It was also decided to "select forthwith" from this portion of land which it was proposed to appropriate for an "Agricultural Farm" not less than six acres for the purposes of a "Botanic Garden."[8]

The course of study in connection with the new subject was outlined and the requisites for obtaining the diploma named.[9]

It was one thing to appoint a professor for the subject and provide for the course, but quite another to induce a large number of students to take it. That it was not taken by more of them does not seem to be the fault of the instructor,

[7] *The Canadian Agriculturist*, Vol. III, p. 32.

[8] *Doc. Hist.*, Vol. IX, pp. 275, 278, 279, 282-283.

[9] *Doc. Hist.*, Vol. XII, p. 275.

for apparently Professor Buckland's work was appreciated by those who attended his classes, as indicated by a presentation made to him by his students in April, 1853, of two volumes of Dr. Mantell's beautifully illustrated work on geology, entitled *The Medals of Creation*. An inscription on the flyleaf of the handsome gift read: "Presented to Professor Buckland as a mark of their high appreciation of his prelections on Agricultural Chemistry by those students of Knox's College, and those of the Congregational Seminary, who attended his course of lectures during the session of 1852 and 1853."[10]

After but little interest had been manifested in the subject for two or three years, it was thought advisable to offer some special inducements to encourage more students to take the course. The first real move in this direction was made in 1854, when the matter was referred to the committee relative to Degrees. This committee brought in a report which resulted in a statute being passed by the Senate in that year, providing for five scholarships of £30 each to be established for the encouragement and assistance of under-graduates in agriculture. Five years later, in 1859, on motion of the Vice-Chancellor,

[10] *The Canadian Agriculturist*, Vol. V, p. 141.

seconded by the Reverend Dr. McCaul, prizes in agriculture of the value of £1.5*s*. for the first year and £2.10*s*. for the second were introduced.[11] These inducements, however, did not have the desired effect of attracting many students, as only a few, not over six or seven in any one year, took the course, and only one student won a scholarship in 1854, none in 1855, in 1856, or in 1857, and but one in 1858.[12]

Previous to 1858, some special prizes in agriculture had also been offered by individuals. A few of these had been won by students in 1857, and in 1858.[13]

As shown by the University calendars, similar scholarships and prizes were offered for years. During a large number of these, however, none were taken, and but few took agriculture.[14]

Thus the course was not an attractive one. To many it seemed a waste of time and money to retain a professor and keep up the department for so few students. In 1860, therefore, when the report of the Senate, showing seemingly too large expenditures in connection with the University, came before the Legislative Assembly,

[11] *Uni. Coll. Cal.* (*University College Calendar*), *1859-1860*, p. 36.
[12] *Uni. Coll. Cal.*, *1857-1858*, p. 54, and *1858-1859*, p. 57.
[13] *Uni. Coll. Cal.*, *1859-1860*, p. 47.
[14] *Uni. Coll. Cal.*, *1881-1882*, Appendix, p. 66.

a Select Committee of the House was appointed to look into the question. During its inquiry, this Committee summoned a number of prominent educationists in the province, and submitted a number of questions to them dealing with practically every phase of the University management and administration. During the discussion the question of agricultural education came up, and as the expenditure in this department seemed out of all proportion to the benefits received, several agreed that the subject should not be continued as in the past.

The Reverend John Cook D.D., Principal of Queen's University, Kingston, being questioned on the subject: "Should there be a Professor of Agriculture; and if so, with what Salary attached?" replied, "In the present state of University Education in this country, I think there should be no more Professors than necessary to give a Classical and Scientific Education. I think there should be no Professorship of Agriculture in the University with Salary."[15]

Dr. Ryerson, during the discussion of the subject, expressed the opinion that the establishment of the Chairs in modern languages, in English and history, in agriculture, and in

[15] *Doc. Hist.*, Vol. XV, p. 106.

meteorology, had been "an unnecessary extravagance."[16] In answer to the question: "Do you think there should be a Professor of Agriculture in University College?" he stated: "I certainly think not. I think any one who wishes to learn Agriculture would learn more with Honourable Mr. Christie on his farm, in six months, than he would learn for three years with the Professor of Agriculture in Toronto University." In the list of subjects in the University Calendar he said he found: "The Practice of Manuring," "The Management of Stock", "Construction of Farm Buildings", "Dairy Management", et cetera. He did not think any practical instruction on such subjects could be given in a University. He believed there had not been more agricultural students attending that class than there had been years since its establishment.[17]

In support of what he had offered on the subject, he quoted the expression of opinion given by the commissioners appointed to enquire into the management of Queen's Colleges in Ireland. They recommended the abolition of the Chair of Agriculture in the Science Division

[16]Wallace, W. Stewart, *A History of the University of Toronto, 1827-1927*, p. 81.

[17]*Doc. Hist.*, Vol. XV, p. 117.

of the Faculty of Arts. From its nature it was questionable whether agriculture should have a place in the course of studies at the College of a University. Practical agriculture was best taught by that experience which constant occupation on a well managed farm afforded. The scientific knowledge which a farmer required would be readily acquired by anyone who had attended the ordinary courses of lectures on chemistry, natural history, geology, and engineering. "The Agriculturist is formed in the field of the Farm, not in the College Hall."[18]

Mr. John Langton, Vice-Chancellor of the University, examined by the Chairman, stated that he did not believe that the Professorship of Agriculture, which had been established either here or in any other University, had answered the expectations of those who founded them. He did not think it was the nature of the subject that it should.

After reviewing much evidence and many opinions which came before the members, either in the shape of statements volunteered, or elicited by questions, and after draft reports had been prepared for the Committee on behalf of the University, and of the Memorialists of the

[18] *Ibid.*, p. 135.

Wesleyan Methodist Conference (which reports apparently were never adopted by it)[19], the "select committee adjourned, at the call of the chairman. . .and never met again. It made . . .no report."[20]

Owing to the failure of this Committee to report, or to arrive at any definite conclusion on the matter, the Government decided to appoint a Commission to enquire into the matter of University administration, and of the expenditure of funds generally. With regard to agriculture, the members reported, in part, that it had been found that the Chair of Agriculture, although occupied by a professor who stood high among the scientific agriculturists of the province, had not met the expectations of the Government. As the number of students had been exceedingly small, at that time not more than half a dozen, it appeared that that mode of imparting instruction in the subject did not meet the requirements of those who should take it, and that but few young men who might be desirous of studying agriculture were coming to the University for it.

The opinion of the University College Council

[19] *Ibid.*, p. 306.
[20] Wallace, W. Stewart, *op. cit.*, p. 82.

with regard to Professor Buckland and the Chair of Agriculture, as well as to some other professorships, was that while no argument for the continuance of those Chairs was urged, yet the members did not feel themselves at liberty to express an opinion on the changes suggested, pointing as they did to the removal of some members of their own body.[21]

Shortly after this the agitation for a separate agricultural school and model farm became strong. With the establishment of this institution at Guelph, the instruction at the University was no longer necessary. The course of study was, however, included in the calendar until the session of 1884-1885, in which year Professor George Buckland's name appeared for the last time in the list of the members of the staff of the University.

Experience had shown that while theoretically it seemed advisable to include agriculture as a subject of study in the University, practically it had proved a failure, and had not met the needs of the farmers or of the young men who were supposed to be benefitted by it.

[21] *Doc. Hist.*, Vol. XVII, pp. 67-68.

Chapter V

RYERSON AND THE COMMON SCHOOLS

AS early as 1846, as shown by his report, Dr. Ryerson, upon his return from abroad, strongly advocated the teaching of agriculture in the public schools. His Normal School, established in 1847, was begun for the purpose of preparing teachers for teaching the subject in these schools. During his visits throughout the province, in his addresses, and in his *Journal of Education*, he made special efforts to induce the people to accept his views. Occasional addresses and articles by prominent men emphasized the importance of the subject; successful agricultural exhibitions, fairs, and farm clubs aided in showing the value of better methods in agriculture; and certain journals supported his policy and urged the teaching of the subject in the common schools. But although he was enthusiastic about it, and had made provision for teaching it, although the teachers-in-training in the Normal School received some instruction in it, although several

outstanding men from time to time sanctioned and advocated it, although text-books were later prepared, and trustees, parents, and people generally had been informed regarding its value, the time was not yet ripe for adopting agriculture as a subject which should be incorporated as an essential, or even a desirable one, for the course of study in the public schools.

Again, while the teachers received, in the Normal School, some training for teaching agriculture, yet when they left that institution they did not receive any encouragement from the parents and trustees to teach the subject in the public schools. Also, it is well to remember that, even if most of the Normal-trained teachers felt inclined to teach it, their number, as compared with the total number of teachers in Ontario, was so small that there would be but few schools in which the subject would be taught. In the Superintendent's Report for 1850, we find that, of the 3,476 teachers in Ontario, only 291 had Normal School training.[1] In other words, less than nine out of every hundred had received any instruction whatever in the subject. By 1855, there was but little improvement. In that

[1] *Report of the Chief Supt.* (*Annual Report of the Chief Superintendent of Education*), *1850*, p. 13.

year, of the 3,565 teachers, only 374 had Normal standing.[2] Even in 1867, twenty years after the Normal School began, and at which date the Chief Superintendent summarized the conditions in Ontario, of the 4,890 teachers, only 601, or still less than one in eight, were Normal-trained.[3]

When we come to the work in the school-room we find that no specific method for teaching, or for choosing the subjects taught, was followed. Pupils were taught by classes or individually; they were taught by the regular teachers or by monitors. The method employed was generally a mixture of the various styles and was "nearly always a higgledy-piggledy, go-as-you-please arrangement. . .unproductive of good results."[4] Because of the voluntary character of the system of education, local parties chose, appointed, supported, and removed teachers, almost at will. Parents and trustees also, to a great extent, determined what subjects should be taught.

With such conditions existing, we would not expect much agriculture to be taught in the ordinary common schools. That it was not a live topic is seen from the fact that for years, in the reports of the Minister, in the minutes of

[2] *Report of the Chief Supt., 1855*, pp. 134-135.
[3] *Report of the Chief Supt., 1867*, pp. 90-91.
[4] *Ryer. Mem. Vol.*, p. 105.

the teachers' conventions, in general reports, and in educational papers, while other school matters and subjects were discussed, agriculture was but infrequently mentioned. Such a paper, for example, as *The Educationist*, published in Brighton during 1860 and 1861, while discussing educational topics generally, and attempting to suggest improvements in our system, does not appear to mention the subject. In his own paper, the *Journal of Education*, Dr. Ryerson, after stressing the subject for a time, apparently thought it wise for years, outside of occasional articles, chiefly contributed, to give but little space to its discussion.

Some papers and individuals, however, occasionally tried to arouse interest in the subject, and favoured having it taught in the schools. An agricultural paper in an editorial in 1849, expressed the hope that agriculture "should form a part of the routine of study" to be pursued in five hundred new schools which might "be established in the western part of the province."[5]

An intelligent farmer, Mr. Robson, through the columns of the *Journal of Education* called attention to what he considered to be an important omission in the common school educa-

[5]*The Canadian Agriculturist*, Vol. I (Nov. 1849), p. 302.

tion, and requested publicity for an extract from James W. Johnston's lectures on the general relation which science bore to practical agriculture, and stated: "I believe many persons look forward to the introduction of agricultural instruction into common schools, and I think it very important that this should not be lost sight of."[6] At the annual meeting of the Teachers' Association of Upper Canada held in Toronto on August 7th to 10th, 1866, Reverend William Ormiston, D.D., President, a motion was brought in to the effect, that, in view of the great importance of a knowledge of agricultural chemistry in the schools, the Association recommends that a bonus of five dollars be given from the Educational Fund to every school in which a class was efficiently taught in the subject, to purchase books or apparatus.[7] Reverend John Armour of Burford, Brant County, in reporting to the General Superintendent stated that nine-tenths of the population were dependent upon the soil for a living, and that he believed that were our young men "taught the science of farming—taught the properties of different soils,

[6]Papers on Agriculture in Common Schools, *Journal of Education*, Vol. XXII (1869), p. 38.

[7]*Minutes, Sixth Annual Meeting of the Teachers' Association of Upper Canada, 1866*, p. 15.

manures, &c.," it would be of incalculable advantage to the rural districts of our country. A year or so before this he had put forth some effort to have this study introduced into some of the schools, but the teachers had objected as it was not on the programme. Not a teacher would introduce the subject into his school.[8]

But, even if agriculture was not on the programme of studies, Dr. Ryerson had not given up his desire to have it taught in the common schools. During his visits abroad (five in all to Europe),[9] he received fresh enthusiasm and was apparently more and more impressed with the value of such a subject as agriculture. On the occasion of his return from the last educational tour of Europe and the United States, he presented, in 1868, a special report[10] on the systems of education noted. In this report he stated that it was worthy of remark that the systems of public education in Europe provided for practical education in connection with the different pursuits and employments of life. Among special schools were those of the arts and trades, and of agriculture. It was thus that in all the continental countries, from Norway to the Alps,

[8] *Report of the Chief Supt., 1867*, Appendix A, p. 44.
[9] *Ryer. Mem. Vol.*, Prefatory Note, p. iii.

provision was made for the education of all classes, for all the pursuits of agriculture. The people of these countries might not be in advance of us in some aspects of the elements of civil and religious liberty, but in other respects they were our teachers and exemplars.

Such reports, Dr. Ryerson's efforts, and the occasional articles, appearing from time to time, helped, but were not alone sufficient to influence public opinion. It was not until such men as the Honourable Adam Ferguson, Honourable David Christie, Senator of the Dominion and President of the Agricultural Association for Ontario, Honourable John Carling, Commissioner of Agriculture for Ontario, and others, introduced scientific farming into the country with remarkable success, and advocated teaching the subject in the common schools, that public opinion began to change.[11]

Other influences were also at work. Changes were in progress. Professor Young, President of the Ontario Teachers' Association, together with Dr. Ryerson, and others interested in

[10]Ryerson, Egerton, *Special Report on the Systems and State of Popular Education on the Continent of Europe, in the British Isles and the United States*, pp. 140-141.

[11]Hodgins, J. G., Agricultural Education in Ontario, *Sch. and Coll. of Ont.*, Vol. III, pp. 314-316.

education, had been strongly advocating a change in the school system of Ontario. The result of their work was the Act of 1871.[12] This new and most important Act, besides making several changes in the government and general conduct of the schools, suggested new subjects for the curriculum. Among others, were those relating to science and agriculture. In the programme of studies for the public schools were chemistry, botany, and agriculture. One great object of the new School Act was "to make our Public Schools more directly and effectively subservient to the interests of Agriculture, Manufactures and Mechanics."[13]

Teachers were to be qualified, upon passing the required examinations and receiving certificates, to teach in the public schools, natural history, agricultural chemistry, mechanics, and agriculture.

In the examinations for public school teachers, the "minimum qualifications" in chemistry for those obtaining Second Class Provincial Certificates included the understanding of the elements of chemistry as contained in the first part (pages 9-76) of Dr. Ryerson's *First Lessons in*

[12]Bell, Walter N., *The Development of the Ontario High School*, p. 156.

[13]*Doc. Hist.*, Vol. XXIII, p. 208.

Agriculture, a text-book gratuitously prepared by the Chief Superintendent, and authorized for use in the schools, a fuller reference to which will be found in the chapter on text-books. The minimum for First Class also, included the chemistry found in the same book.[14] According to the regulations of the Council of Public Instruction,[15] for those who desired special certificates for teaching agriculture, additional work in natural history, botany, and agricultural chemistry was also prescribed.[16] As copies of examination papers set and of certificates granted under these special regulations are now rare, one of each[17] will be found in Appendix C, and Appendix D, respectively.

Instructions regarding the new School Act were issued in an official circular from the Chief Superintendent, to the trustees of rural schools throughout the province, in 1871. In them was the thirteenth section of the Act, which contained a most important provision for introducing into the schools the teaching of these elements of natural history, agricultural

[14]*Doc. Hist.*, Vol. XXV, pp. 138-140.

[15]*Report of the Chief Supt., 1872*, pp. 172-175.

[16]*Doc. Hist.*, Vol. XXV, p. 139.

[17]Kindly forwarded to the author by Professor W. E. Macpherson.

chemistry, mechanics, and agriculture, and made it the duty of the Council of Public Instruction to train teachers, prepare a programme of studies, and select text-books for that purpose, thus giving the public schools, in connection with various industrial pursuits of the country, a practical character, which they had not hitherto possessed, but which had recently been largely provided for by the Legislature.[18]

Another circular was sent to the inspectors of the public schools, stating that the subjects were prescribed only to the extent as was "absolutely necessary for the advancement of the Country—in Agriculture, in the Mechanical Arts, and Manufactures."[19]

At the Ontario Teachers' Association that year, the President, Professor Young, addressed the members on the Act recently passed, and stated that, as regards the public school programme, the chief thing to be noticed was the introduction into it of a new scientific element. The Council of Public Instruction was required to make provision for teaching in the public schools, the elements of natural history, agricultural chemistry, mechanics, and agriculture.

[18] *Doc. Hist.*, Vol. XXIII, p. 74.
[19] *Ibid.*, p. 136.

It was not to be thought that it was intended, by the introduction of these branches of study into the public schools, that less attention than formerly was to be given to the old and valued friends of the three R's. Reading, writing, and arithmetic must ever be the main strands in the cord of elementary knowledge. But that was eminently the age of science. In those circumstances a school system which failed to furnish an elementary education that would give to every child in the province the means of fitting himself to look with intelligence, when he grew up, on the scientific movement going on around him, and to take part, if qualified, in the work of original scientific investigation, would be seriously defective. When some people would see the programme of study which had been drawn up by the Council, they might possibly scoff at the extremely elementary character of the lessons which were to be given in natural history and agricultural chemistry, and might say what was the use of learning anything where so little was learned? But if the little were only well taught, it would be invaluable. It would create a taste for more. It would be an instrument for the acquisition of more. It would introduce into the mind new conceptions—seed-

thoughts which might germinate and bring forth in due time, who could tell, what fruit?[20]

That some schools, at least, faithfully attempted to carry out the new regulations is shown by some extracts from the reports of the public school inspectors in 1872. The inspector of the County of Hastings, South, reported that agricultural chemistry was taught in a few of the schools, generally by the second class teachers. In some schools it was taught very thoroughly and practically, reflecting great credit on the teachers so actively engaged. The inspector of the County of Halton stated that during the year he visited all the schools twice, and examined the classes. On his second tour he examined them in agricultural chemistry. The classes were submitted to a written examination. The reorganization of the schools on the basis of the new programme had been faithfully carried out, and the new subjects of study were being rapidly introduced. He anticipated being able at the close of the year to report that all the subjects prescribed, except drawing and vocal music in some schools, had been introduced.[21]

For various reasons, however, the teaching of

[20] *Minutes O.T.A.* (*Ontario Teachers' Association*), *1871*, p. 21.
[21] *Doc. Hist.*, Vol. XXV, pp. 10, 17-18.

agriculture in the public schools did not continue long or meet with the success the promoters anticipated or desired. In the first place, to be taught successfully, agriculture, being a practical subject, should be taught practically instead of from books. In the second place, although many of the teachers had some preparation in the Normal School, yet this was not sufficient or of the proper kind to send teachers out fully qualified and enthusiastic about the subject. In the third place, even if they were qualified, where was the time to be found in the now crowded curriculum, to teach so many subjects? Again, the inspectors and supervisors, while sympathetic and anxious to see that the new regulations should be carried out, were themselves not well versed in either the matter or the method of the subject; and most important, the parents, trustees, and public generally, were in most cases, not only, not sympathetic, but quite opposed to the subject being included in the public school course of studies.

Under such circumstances it was little wonder that objections were raised here and there against agriculture, and the other new subjects, being taught. It was stated that the introduction of these subjects was premature, and

that even if not premature, they were unnecessary.

Dr. Ryerson replied to the objections and attempted to justify his position.[22] His defence, however, did not stop criticism or popularize the subject. Many public men, some teachers, and others in authority, were much averse to the idea of introducing agricultural education into the public schools. By means of articles in papers, addresses and resolutions at meetings, and items in reports, they voiced their opinion against it, and exerted not a little influence upon many who were like-minded or who had not carefully considered the value of the subject. At teachers' conventions and similar gatherings the matter was discussed, and occasionally motions were brought in opposing the idea. At the annual convention of the Ontario Teachers' Association, held in Toronto in 1873, the President, Dr. H. A. Nicholson, in his address spoke strongly against agricultural teaching in the schools. "Agriculture," he stated, "can only be learnt upon the farm, and should find no place in ordinary school education, nor indeed in any course of study which cannot be carried out and enforced practically."[23]

[22] *Doc. Hist.*, Vol. XXIII, pp. 203-207.
[23] *Minutes O.T.A., 1873*, p. 26.

Again, at the Convention in 1875, a motion to leave agriculture out of the Fifth Class programme was introduced.[24] At the Huron Teachers' Association in 1876, a resolution was brought in to include "Natural History, Agricultural Chemistry, [and] Domestic Economy," as optional subjects; also at the Elora School Convention a resolution that, "Botany, Natural History [and] Agricultural Chemistry," be made optional subjects.[25]

The trustees and parents were much to blame for keeping agriculture out of the schools. They "hired" the teacher to teach subjects considered more important than agriculture. Indeed, they were of the opinion—one which existed for decades to come—that they themselves could teach at home all that was necessary to learn about farming. Thus, while legislation might be passed, while the Chief Superintendent and the Department of Education might prescribe a course of study, suggest a text-book, and attempt to regulate the introduction of the subject into the schools, while some patriotic citizens and advanced educationists might advise that due consideration be given to this branch of learning,

[24] *Doc. Hist.*, Vol. XXVII, p. 63.
[25] *Doc. Hist.*, Vol. XXVIII, pp. 21, 22.

and while some teachers were prepared to teach it, yet agriculture did not find a permanent place on the programme in the schools.

Dr. Ryerson here, also, was ahead of his time. The people were not ready to receive his advanced suggestions. In a few years agriculture was taught in but few schools, and conditions regarding it were quite similar to those which had existed before the passing of the School Act of 1871.

The great leader's splendid and far-reaching régime came to an end in 1876. His aim "to educate the people through the people themselves" had been successful as far as the times permitted. These times did not sanction agriculture. It had not gained much of a foothold in the common schools during his tenure of office. How it progressed in these schools from this time on is considered in the following chapter.

Chapter VI

PROGRESS IN THE PUBLIC SCHOOLS

DR. RYERSON'S long and fruitful term as Superintendent of Education had closed with agriculture on the course of study for the public schools. His successors in office followed his example, and retained the subject on the curriculum with his text-book still authorized for public and high schools. But during the quarter of a century following his régime, the enthusiasm for agriculture burned low. The people seemed no more ready than formerly to receive it, the trustees were no more anxious for teachers to take time for it, and the teachers themselves were no more prepared or willing to teach it.

During all these years, however, the spark of interest was not permitted to die. Here and there, from time to time, were those who saw its value and advocated its inclusion as a subject in the schools. In 1881, a prominent agricultural leader, Mr. James S. Mills, President of the Ontario Agricultural College at Guelph, who

favoured it, delivered at the Ontario Teachers' Association an able address on "Agricultural Education in Schools."[1] Honourable Adam Crooks, Minister of Education, in his annual report for 1881, stated that the time was opportune for extending education in the direction of mechanical, agricultural and practical instruction for boys, and of household and domestic arts for girls.[2] In 1884, *The Canada School Journal*, after stating that they had received a copy of an excellent lecture by the Honourable Donald Ferguson, Provincial Secretary of Prince Edward Island, on the subject, "marked by strong common sense" and not assuming "the extravagant positions taken by many writers and speakers who discourse on agricultural education," admitted that agriculture could not supersede reading, writing, and arithmetic, but contended that more time could be given to the sciences related to agriculture. We had not begun a day too soon "to teach the children in our schools the elements of agriculture."[3] President James S. Mills, of the Agricultural College, made, in the following year, another strong plea

[1] *Minutes O.T.A., 1881*, pp. 7-8.
[2] *Report of Minister, 1880-1881*, p. 416.
[3] *The Canada School Journal*, Vol. IX, pp. 148, 151.

for agricultural education in the public schools. He referred to his experience in teaching and his careful consideration of the subject, and to his belief that the first principles of agriculture could and should be taught in the rural schools. Since it underlay the prosperity of every class in the community, agriculture should claim consideration and a place on the programme of studies "before anything and everything else, except those elements of a general education which we all insist on as the first and most important work of every public school." Continuing, he claimed on behalf of the whole population, that, as soon as possible, steps should be taken "to introduce and make compulsory the teaching of the first principles of agriculture in all our rural Public Schools."[4] In 1888, Professor Thomas Shaw, of the Ontario Agricultural College, gave before the Ontario Teachers' Association of that year, an address on "Agriculture in our Rural Schools," in which he entered his plea for the teaching of the subject in such schools.

One of the important papers advocating agriculture at this time was that given at the Ontario

[4]Mills, James S., Agricultural Education, *Eleventh Annual Report of the Ontario Agricultural College, 1885*, p. 9.

Teachers' Association in 1890, by Mr. J. E. Bryant. After asking what right agriculture had to be considered as a subject of elementary education, he discussed its value from the disciplinarian, the aesthetic, and the utilitarian standpoints, outlined a syllabus of study, stated that he would like to tell how it should be taught, and referred to the scientific instruction in agriculture which was being given in foreign countries as in England, Scotland, and the United States, and especially in France, Germany, and Austria. After further stating that he trusted that his argument had borne him out in saying "that the subject of Scientific Agriculture should be taught at least in every public school which is supported in whole or in part by the rates of farmers" but "ought not to be compulsory on every pupil," and that the Education Department should not attempt too much, but that some provision ought to be made for the professional training of teachers in this important subject, he concluded by stating: "The lesson is obvious. If Canadian Agriculture is, as we believe it is, the foundation structure of all our industries, the main fountain of our wealth, and the principal support of our material well-being, then in order to maintain its position

in the world in face of the world's competition, it has to become more scientific; and if it is to be made more scientific, the place to begin the work is in our public schools."[5]

The paper made a deep impression upon those assembled and a strong committee was appointed to prepare a resolution on the subject of agricultural teaching, and to submit the same to the section on the following day. That committee reported as follows: "That the time having come when the subject of Agriculture should occupy the place on our school programme which its importance demands, we recommend that it be given equal prominence with other subjects on the curriculum, at the examinations, and also that a committee be appointed to lay Mr. Bryant's paper before the Ministers of Education and Agriculture, with a request to have it published in pamphlet form and sent to the schools and Farmers' Institutes for distribution, and that the pupils' school work in other subjects be proportionately lessened."[6] The report was adopted, and a committee appointed for the above purpose.

[5]Bryant, J. E., Agriculture in Public Schools, *Minutes O.T.A., 1890*, pp. 88-107.

[6]*Minutes O.T.A., 1890*, pp. 14, 19.

At a special meeting of the Public School Inspectors' Section of the Ontario Teachers' Association in February of that year, the subject of the higher education of the farmer was introduced, and a resolution brought in to the effect that certain schools, as one in each township, be set aside in which agriculture and related subjects should have a prominent place in the course of studies, that the Minister of Education have the Public Schools Act amended in that direction, and that special grants from the Legislature, and from the County and Township Councils, be made to aid the trustees in establishing such schools.[7]

Mr. C. C. James, Deputy Minister of Agriculture, in an address at the Ontario Educational Association, in 1898, on the "Relation of Agriculture to Our School System," made it clear that, in his opinion, agriculture should and could be taught "just as well to the Public School pupils as are some of the subjects on the course."[8] Mr. James, basing his opinion on experience, firmly believed in the feasibility and desirability of teaching agriculture in the schools

[7] *Ibid.*, pp. 26, 29.

[8] James, C. C., The Relation of Agriculture to our School System, *Minutes O.E.A., 1898*, pp. 171-177.

of both grades, public and high.[9] As an aid in this direction, as shown more fully in the chapter on "Text-books," Mr. James prepared in that year, a text-book on agriculture which was authorized for use in both the public and high schools.

Farmers' Institutes by this time were becoming strong. In 1898, there were 16,351 members. For that year, ending June 30th, there were reported 658 meetings, 3,270 addresses, and an attendance at the meetings of 126,094 people. Such Institute meetings, and the reports, had their influence in favour of agricultural education in the schools.[10] In one of the annual reports at this time, it was stated that agriculture should be introduced as compulsory into the public school, and should be taught along with the A.B.C.'s.[11] In another article, under the heading, "Agriculture in Ontario Public Schools," was the statement, "It is confidently hoped that the Minister will soon see his way clear to making the subject compulsory, at least in the rural schools."[12]

[9]*Report of the Superintendent of Farmers' Institutes of the Province of Ontario, 1897-1898*, p. 11.

[10]*Ibid.*, pp. ix, 11.

[11]Brodie, G. A., Agricultural Education, *Report of Farmers' Institutes, 1897-1898*, p. 13.

[12]*Report of Farmers' Institutes, 1897-1898*, p. 11.

But, while various attempts had been made, there was, until the end of the century, but little progress in agricultural education. At first glance, the methods, the matter, and direction of work in the public schools seemed to vary but little for years, yet in Canada, in the United States, and in other countries, during the quarter of a century, from 1875 to 1900, a marked change was experienced in educational ideals. The old type of limited curriculum for disciplinary purposes was no longer meeting the changed conditions of our modern life. Elementary science, and other new and related subjects, because of their practical usefulness in life, were beginning to crowd arithmetic, grammar, and such older studies.[13] The change had taken root earlier in the United States than in Canada, but in both countries the growth was proceeding almost abreast. The European ideas and methods which had influenced Dr. Ryerson in planning and shaping our system of education, had similarly implanted themselves in the methods and practices in the neighbouring republic. As expressed by one writer, "The spirit of Pestalozzi brooded over the practice of education in the United States about the middle of last

[13]Cubberley, E. P., *Changing Conceptions of Education*, p. 40.

century." "The importation of the Pestalozzian methods. . .into the United States", stated Professor Parker, was "the most striking development in American elementary education during the middle of the nineteenth century."[14] One of the first results of this importation was the introduction of object lessons into the schools. This study soon became quite popular. In 1870, it began to develop in another direction and swing towards natural science. A little later, another subject growing out of this, and somewhat related to agriculture, was attracting the attention of educationists in other lands, especially in the United States. This was nature study. The idea of studying actual objects, things in nature, appealed to many as one of the outstanding new things in the educational world. The motto of Agassiz, "Study Nature, not Books," became the watchword in progressive schools in both city and country.[15] The zeal for nature study was caught by supervisors and teachers alike, and a wave of enthusiasm for it soon spread over the United States. This had its influence in Ontario. Some teachers who had been trying to follow the regulations and teach

[14]Moore, E. C., *Fifty Years of American Education*, pp. 49-50.

[15]Mitchell, D. O., A History of Nature Study, *Nature-Study Review, Oct., 1923*, p. 305.

agriculture swung over to nature study and taught it instead. Many others began teaching the subject. Additional impetus was given to this phase of the work when a nature study branch was established in connection with the Macdonald Institute, Guelph, in 1904. By 1909, a summer course in nature study was given at the Macdonald Institute, with an attendance of about fifty. One of the chief phases of the work emphasized during these days was that of school gardening, an account of the development of which is given in the next chapter. With the development of this movement, the swing was again towards agriculture. Here it has remained. From that time on, agriculture has found a more permanent place in our public schools.

It had taken a long time to come to this stage. While beginnings had been made, and attempts to establish this type of education, in Canada, in the United States, and in some other countries, as far back as the seventeenth and eighteenth centuries, but little progress had been made heretofore. From about the beginning of the present century, however, the agitation for agricultural teaching has been quite general over the civilized world. This development in other

lands was now one of the important influences which materially aided in the definite move towards agricultural education in Ontario. Another influence was the era of progress which came to this continent about this time. During the decade from 1897 to 1907, the United States and Canada experienced an unprecedented period of development and prosperity. With this advancement, a new viewpoint was attained and a new inspiration given to the people, causing a new philosophy to actuate the work of the school. These "changing conceptions" of the function of the school were indicated by the new and extensive interest in industrial and vocational training.[16]

In Ontario, this new attitude was manifested by a revision of the public and high school curriculum. In the new regulations and courses of study in 1904, which were in keeping with the suggestion in the report of the "Committee of Nineteen"—a committee of the Ontario Educational Association, whose report had given prominence to subjects somewhat modern,[17] among which subjects was included agriculture in the public school course of study—it was stated:

[16]Cubberly, E. P., *op. cit.*, pp. 50, 52, 53.
[17]*Report of Minister, 1904*, pp. xviii-xix.

"By direction of the Board, and with the concurrence of the inspector and with a programme and a time-table approved by him, a short course in Agriculture may be taken up, chiefly in connection with suitable topics under Geography and Elementary Science."[18] The attitude of the teachers, parents, and trustees was changing also, for, according to reports for these years, thousands of pupils were taking agriculture.[19] It was about this time also that the advance in industrial and technical education, and the influence of the nature study and school garden movement, began to be felt.

But there were still, as Mr. C. C. James pointed out, difficulties. One of the most serious was that teachers were not yet properly qualified to teach the subject. "You cannot expect," he stated, "a young lady who has been born in a town or village, and then takes a course in the High School and at the Normal School to take up school work in the country and teach boys from the country anything about agriculture."[20]

This lack of trained and properly qualified

[18] *Ibid.*, pp. xvii, 133.

[19] *Report of Minister, 1906*, pp. 7-11.

[20] *Royal Commission* (*Report of the Royal Commission on Industrial Training and Technical Education in Ontario and in Other Countries, 1913*), Vol. IV, p. 2189.

teachers in agriculture had been one of the chief handicaps for years—in fact, from Ryerson's early days down to recent times. During the first nine sessions of the Normal School no certificates were granted by the Department. Graduates had to submit to examinations by a county board before securing a licence. These boards did not consider agriculture except as a subject to be omitted. From 1853 until 1871, a dual system of granting certificates was in operation. Normal School graduates received provincial certificates of various grades, and county boards issued certificates valid only in the county in which they were issued. In 1871, a radical change was made by which county boards were allowed to issue only third class certificates, and these only to those who had passed a written examination upon papers prepared by a central committee chosen by the Council of Public Instruction. Second and first class certificates were granted only by the Department of Education, and valid during good behaviour. This was decidedly different from the old system which allowed each county board to fix its own standard and grant certificates, often to persons who were wholly incompetent.[21]

[21] *Doc. Hist.*, Vol. XXIII, p. 131.

But this change did not improve matters much in agriculture, as there were still so few teachers who were trained. Two years after the passing of the Act there were, so far as normal school training was concerned, out of 5,306 teachers actually employed in the province, only 844 who held certificates from that institution. This left about 4,500, who, so far as we know, had no training whatever.[22] An additional normal school was opened in Ottawa in 1875, but this did not improve such conditions materially. Other training schools, the County Model Schools, were established in 1877.[23] The result of these schools was that the country soon became flooded with teachers with third class certificates. They were very numerous even in the oldest and wealthiest counties.[24] As the model term was short, for a time eight weeks, then eleven weeks, and later fifteen, it meant that there was not much time for training, other than in the supposed essential subjects. In commenting upon the length of the term at model school, Mr. J. J. Tilley, Inspector of County Model Schools for years, deplored the fact that it was too short for the proper training

[22] *The Ontario Teacher*, Vol. I (Feb. 1873), p. 34.
[23] *Report of Minister, 1890*, p. 125.
[24] *Report of Minister, 1880-1881*, p. 31.

of teachers, especially when such a large per cent. of the teachers in the province were third class teachers.[25] And as seventy-five per cent. of these teachers received no further training than that which they received in the model school, it meant that for years to come there was little improvement. Teachers of the lowest grade became so plentiful that the supply was quite in excess of the demand. This resulted in competition, and a willingness on the part of many to accept low salaries; trustees in a majority of cases took advantage of the conditions.[26]

This state of affairs continued for years. In 1897, of the 9,128 public school teachers in the province, 4,465, or forty-nine per cent., held third class certificates, and 924, or ten per cent. held temporary ones. The great majority of this fifty-nine per cent. were, of course, employed in the rural schools. In 1906, when the model schools were still training most of the teachers, 4,153 rural schools, or sixty-nine per cent. of their total number, employed teachers with third class or temporary certificates. And as, at this period, but few, "if any, of the Model Schools

[25] *Report of Minister, 1890*, pp. 125, 127-128.

[26] Tilley, J. J., *Report of, Relative to the Training of Teachers and Other Matters*, p. 6.

were in a position to cope successfully with the new situation" that had arisen during the few preceding years and teach the so-called newer subjects which had been introduced, their graduates were not prepared to teach agriculture.[27] In 1908, out of 5,696 teachers in rural schools, only twenty-six per cent. had second class certificates. Third class numbered seventy-three per cent. Three-fourths of these still received no other training. The average age of these teachers was less than nineteen. Under such conditions there is little wonder that agriculture was not a common subject in the schools.[28]

This difficulty regarding teachers not being qualified was one that could not quickly be overcome. But conditions gradually improved. The closing of the county model schools in 1907, the holding of summer schools for teachers,[29] the appointment of a director of the work,[30] the teaching of agriculture in the normal schools, the influence of the public school inspectors, the encouragement and incentive through school fairs—dealt with in Chapter XI—the inducement through special grants (these and other

[27]Karr, W. J., *The Training of Teachers in Ontario*, p. 12.
[28]Tilley, J. J., *op. cit.*, pp. 6-7.
[29]See Chapter X.
[30]See page 102.

grants are considered in the chapter on grants and aids), and the aid contained in circulars, manuals, and *The School*—a magazine published at the College of Education, Toronto, devoted to elementary and secondary education in Canada—have done much to improve the qualifications of, and give assistance to the teachers. Thus in the course of the last score of years a large number have been, at least partially, prepared to teach the subject.

From 1913, when the expenses of the teachers attending summer schools in agriculture began to be paid by the Department, qualified teachers became more numerous. In that year, 177 village and rural schools formally undertook to give instruction in agriculture, and 159 qualified for grants. Next year, 278 schools were entered and 264 of these qualified. An increase from 33 schools in 1911 to 278 in 1914 shows that conditions were changing rapidly, and that public opinion was growing in favour of the work.[31]

In 1914, *The School*, began a series of articles relating to agriculture and school gardening.[32] From that time on, this periodical has given due attention to agriculture, and during recent years

[31] *Report of Minister* (S. B. McCready's Report), *1914*, p. 691.
[32] *The School*, Vol. I (Feb., 1914), p. 403.

has published regularly suggestions for lessons in the subject.

The new regulations and courses of study of 1914,[33] outlined a better and more practical course. The main topics for Form III included: The Farm, The Garden, The Orchard, The School, and School Progress Clubs. Under these headings were several sub-topics including such details as breeds of farm animals, germination tests, classification of soils, bulb growing, hotbeds and cold frames, and beautification of the school grounds. For Form IV there were the same main headings but different details as, weed seed impurities, milk testing, drainage, poultry, intensive gardening, care of an orchard, methods of packing and shipping fruit.

In 1916, Professor S. B. McCready, who had been Director of Elementary Agricultural Education since 1911,[34] was succeeded by Dr. J. B. Dandeno, who still holds the position. In this capacity he is also Director of the Summer Schools, in agriculture for teachers, and Inspector of Agriculture in the public, separate, high, and normal schools. In 1917, Dr. Dandeno mentioned in his report some of the important

[33] *Report of Minister, 1914*, pp. 203, 207-208, and *Manual of Elementary Agriculture and Horticulture*, pp. 1-2.

[34] *Report of Minister, 1912*, p. 226.

difficulties still to be overcome in teaching agriculture in the public schools. Chief among these were the following: that teachers, parents and trustees considered the school programme already overcrowded; that some farmers had the idea that they could teach their children at home all the agriculture necessary for them in after life; that lady teachers, many of them brought up in the city and without any rural viewpoint, were not considered qualified to give any instruction in agriculture worth while; that the rural population did not really know the nature of the work nor its relation to the schools; and that grants, when earned, were not paid until long overdue.

By 1924, about one-third of the public and separate schools in the province were giving instruction in elementary agriculture and horticulture, about two-fifths of these had school gardens, and about twice as many had home gardens. By 1928, over half as many more qualified for grants and had home gardens. The summary in Table I, giving the number that qualified for grants from 1903 until 1928, shows the progress from year to year.[35]

Much of this agricultural work has been

[35]*Report of Minister, 1928*, p. 38.

practical. As there has not been for years an authorized text-book (better work seemingly

TABLE I

NUMBER OF PUBLIC AND SEPARATE SCHOOLS WHICH TOOK AGRICULTURE AND QUALIFIED FOR GRANTS, 1903-1928

Year	Number of Schools	With School Gardens	With Home Gardens
1903	4	....	....
1904	7	....	....
1905	6	....	....
1906	8	....	....
1907	2	....	....
1908	14	....	....
1909	16	....	....
1910	17	....	....
1911	33	....	....
1912	101	....	....
1913	159	....	....
1914	264	208	56
1915	407	222	185
1916	585	554	261
1917	989	466	523
1918	1,020	588	432
1919	1,408	618	790
1920	1,648	702	946
1921	1,804	690	1,114
1922	2,047	796	1,251
1923	2,288	843	1,445
1924	2,285	831	1,454
1925	2,509	783	1,726
1926	2,802	852	1,950
1927	3,193	981	2,212
1928	3,595	1,059	2,536

being done in this subject without one), note-books containing notes on lessons taught, on observations made, and on experiments performed have been made by the pupils. Many of these contain clear and comprehensive notes as well as drawings, and are very creditable to the pupils.

Recently teachers have been better qualified for teaching. By 1927, of the 16,214 teachers 11,870 held second class certificates, 2,530 held first, only 75 third, and 14 district. Most of the others held kindergarten or special certificates.[36]

With the model schools closed (the county model schools closing in 1907, and others, as those in the Districts, and the summer model schools, recently), it means that all teachers, who receive professional standing now, must have a second class or higher grade certificate. This implies that all elementary school teachers now entering the profession have some training in the teaching of agriculture.

The methods, also, of teaching agriculture have changed. The text-book method, used to a great extent some years ago, has given way to the experimental and the practical. Scientific principles that underlie the practices in agri-

[36] *Schools and Teachers, Ontario, 1927-1928*, p. 584.

culture are emphasized. Instead of teachers being expected to know all about farm operations and to tell the pupils how to farm, they may teach the general principles regarding scientific agriculture, direct the pupils' observations, experiments, and investigations, call attention to the new ideas and up-to-date information contained in the bulletins, circulars, and agricultural publications, and start boys and girls on the road to independent inquiry, thinking, and investigation, and leave the teaching of many of the details of farm practices to others.

In 1924, a tentative Course of Studies for Public and Separate Schools was issued by authority of the Minister of Education, which outlined a minimum and a supplementary course in "Nature Study and Agriculture" for each of Forms III and IV.[37] The Regulations stated, in part: "The materials selected and the methods adopted in the courses in Nature Study and Agriculture should be directed towards developing in the pupil a sympathetic interest in plant and animal life, as well as an ability to observe and interpret correctly the common phenomena of his environment." The obligatory minimum

[37] *Courses of Study, Ontario Department of Education, Public and Separate Schools, 1924*, pp. 25-27.

course was to be taken in all schools and selections from the supplementary course "may be made to suit the particular conditions of the environment." Further it was stated that: "The agricultural topics of the supplementary course are not to be regarded as a means of teaching the pupil to carry on farming operations, but rather as a means of giving him an elementary knowledge of the more important scientific principles underlying the processes and activities of the farm."[38] Most of these topics are similar to those which had been included in the previous course, and are supposed to be dealt with in a practical way.

In 1926, this course was made obligatory.[39] This means that the combined subjects, nature study and agriculture, are now definitely on the course of study for the public and separate schools in Ontario.

[38] *Courses of Study, 1926*, pp. 25-27.
[39] *Ibid.*, p. 8.

Chapter VII

SCHOOL GARDENS

THAT which gave a new turn to nature study in Ontario, and at the same time led to a more permanent basis for agricultural education, was the school garden movement inaugurated in 1904, by a Canadian, well known for his philanthrophy, Sir William Macdonald of Montreal. This movement began by starting school gardens in various parts of Canada. These gardens were part of an educational movement associated with his plan for the improvement of Canadian schools, and constituted an important feature of a general scheme (of interesting and training boys and girls in connection with farm work), devised by his friend and co-worker, Professor James W. Robertson of McGill University, Montreal, who became the director of the movement.

Professor Robertson had, previous to this, been interested in this type of education.[1] As

[1]Robertson, James W., Can. Ag., and Rur. Ed. (Canadian Agriculture and Rural Education, *The Empire and The Century*), p. 391.

Commissioner of Agriculture and Dairying for the Dominion of Canada, he had advocated school gardens, contending that it would be of great benefit to the boys and girls of rural schools to have a school garden with a plot for each child over eight or nine years of age. As in England and on the continent of Europe, the school gardens could be used "for the training of children to habits of close observation, of thoughtfulness, and of carefulness."[2]

Until that time but little had been done in the rural schools to educate the children towards aptitudes, inclination, and ability for deriving satisfaction, as well as material prosperity, from the occupations of rural life. A wide-spread feeling existed that something ought to be done to bring rural schools into closer touch with the practical needs of country life. Many educational leaders had been concerned with the enlargement of colleges, the improvement of schools in the larger centres, and the adjustment of these to the needs of the urban population, but few had given much thought towards enhancing the excellence of the rural public schools. Sir William Macdonald and Professor James W.

[2]Robertson, James W., *Education for the Improvement of Agriculture*, p. 37.

Robertson were among those who believed that the ordinary public schools of Canada should play a greater part in raising the general level of intelligence to a higher plane, and that the opportunities for education in rural districts in Canada should be more worthy of enlightened and progressive Canadians. But little had been done to reform or enrich the course of study or the method of training in the rural schools. These and other reasons caused Sir William Macdonald to devote large sums of money to what may be called "object lessons," rather than experiments, towards the betterment of elementary and secondary schools. Thus, it came about that "object lesson" school gardens which were to help meet some of these conditions and give the pupils a rural outlook were established at twenty-five rural schools in the eastern provinces of Canada. Object lesson consolidated schools were also established in each of the provinces of Ontario, Quebec, New Brunswick, Nova Scotia, and Prince Edward Island. Each of these had a school garden and carried on nature study work. A Macdonald Rural School Fund was to meet, for three years, the additional

expenses incurred in establishing and maintaining these schools and gardens.[3]

To carry out satisfactorily the programme planned, properly qualified travelling instructors to supervise the work should be obtained. Certain teachers were accordingly selected and given special training at Chicago, Cornell, Columbia and Clark Universities, and at the Ontario Agricultural College, at Guelph,[4] where they received instruction in nature study, school gardening, and related agricultural work, with special reference to the rural schools. Five of the schools with school gardens were located in Ontario, one each at Carp, Galetta, Richmond, North Gower, and Bowesville, in the County of Carleton, going into operation in April, 1904.[5] These were placed under the direction of Professor Robertson, with Mr. J. W. Gibson as travelling instructor. During the garden season the latter visited each school one day per week, giving assistance to teachers and pupils in the work.

The size of the plot was, in each case, two acres, except that of Richmond, which had three.

[3]Robertson, James W., *Can. Ag. and Rur. Ed.*, pp. 393-395.

[4]Cowley, R. H., The Macdonald School Gardens, *Queen's Quarterly*, Vol. XII (April, 1905), No. 4, p. 401.

[5]*Report of Minister, 1904*, p. xxx.

A description of the Bowesville garden will suggest the general features. These included a belt of ornamental native trees and shrubs which surrounded the grounds, walks, boys' and girls' playgrounds of about half an acre and a quarter of an acre respectively; some light graceful shade trees as cut-leaf birch; a small orchard in which were grown a few varieties of fruit trees most profitable to the district; a forest plot in which many important Canadian trees were grown from seed, and by transplanting; some wild herbs, vines, and shrubs; individual plots of vegetables and flowers; an open lawn, large flowering plants, foliage, rockery, and ornamental shrubs. Special studies of such plants as corn, clover, small fruits, tomatoes, cabbage, beans, peas, and beets were features at the various schools. The gardens were managed throughout on the basis of individual ownership, individual effort, and individual responsibility, each pupil having a plot of his or her own.

In the largest school, two hours work per week by the pupils was found to be sufficient to keep the gardens in proper condition. In one school the enthusiasm was so great that the pupils did all their garden work outside of school hours. At this school the garden did not suffer from

neglect in the slightest during the midsummer vacation.[6] During the first autumn the products of the gardens won about a hundred dollars in prizes, given by agricultural societies and private citizens.

With the garden work an attempt was made to increase the pupil's knowledge and train him in methods of work. As the Royal Commission on Industrial Training and Technical Education—appointed by the Dominion Government in 1911, to enquire into the state and possibilities of Industrial and Technical education and bring in a report with suggestions—stated: "At the School Gardens an effort was made to give the children information and training in three important matters in connection with agriculture: the selection of seed; the rotation of crops; and the protection of crops against weeds, disease, and insects."[7]

The advantages of these gardens to the pupils cannot well be estimated. Speaking generally, they were educational, economic, and national. There was healthful release in the open air, the opportunity for correlation with other work, the turning of the powers of observation into orderly

[6]Cowley, R. H., *op. cit.*, pp. 401, 405-408.
[7]*Royal Commission*, Vol. I, p. 154.

channels of cause and effect, the ever widening outlook towards the objects and forces of nature, the freeing of the pupils' minds from the power of sensory illusions and their moral natures from superstitions. The sense of ownership and the spirit of co-operation and mutual respect for one another's rights were cultivated. Economically, a knowledge of the soil, of the conditions of plant life, the value of fertilizers, of seed selection, of methods of destroying weeds, and of many other matters was obtained. Nationally, the garden developed a wide interest in the fundamental industry of Canada—agriculture—upon which it so largely depends for its material prosperity.[8]

In the school room the children liked their work better.[9] The good influence on the discipline was remarked by all the teachers.[10] Mr. G. A. Moore, principal of the Carp public school, reported that it was impossible to over-estimate the value of school gardening on the boys and girls. After engaging in the garden work, the pupils, competing with children from other schools, including city schools, had been first in the examinations. The whole tone of the school had been improved morally, socially, and

[8]Cowley, R. H., *op. cit.*, 415-418.
[9]*Royal Commission*, Vol. I, p. 155.
[10]Cowley, R. H., *op. cit.*, p. 417.

aesthetically. The boy made the excuse to come to school rather than the one to remain at home. The parents, also, took a pride in the work of the boys and girls.[11]

But Sir William Macdonald's purpose towards the improvement of rural education could not be fulfilled with only his gardens, splendid though they were. Such a scheme needed headquarters where teachers and leaders could be trained for carrying on and continuing the work. In consequence, the Macdonald Institute at Guelph, provided for through his generosity, at a cost for erection and equipment of nearly $200,000, was established in 1903, the fine structure being built on the campus adjoining the Ontario Agricultural College. The institute, with its equipment, experimental plots, and instructors, was to furnish instruction in nature study, garden work, household science, and manual training.

To give greater permanency to the work, as far as teacher training in elementary agriculture and nature study was concerned, the movement

[11] *Royal Commission*, Vol. I, pp. 155-156.

An excellent description of the Macdonald School Gardens, together with good full page photographs of the same, may be seen in *The Macdonald School Gardens* by R. H. Cowley, published in *Queen's Quarterly*, April, 1905.

was also fostered to a very definite degree by the Departments of Education and Agriculture, and by the Ontario Agricultural College, with, in a short time, Professor S. B. McCready of the latter institution, in charge of the work.[12]

The Institute was soon ready for classes. In 1904, its first summer school for teachers was held, and in the fall the first inter-provincial teachers' class under the Macdonald Scholarship scheme was inaugurated. At this date another important step was taken in the direction of agricultural education in Ontario by incorporating the subject of nature study into the public school course of study.[13]. In other words, school gardening and nature study were to be associated and given an agricultural trend. Grants were also given this year for work in connection with the school garden. To receive the grant the garden must be at least one acre in extent.[14]

School garden work now began to receive greater recognition from the Department of Education. Definite instructions were given with regard to the size of the plots, and to the time to be given to garden work—from one to two hours per week. It was suggested that

[12]Miller, James Collins, *Rural Schools in Canada*, p. 74.
[13]*Royal Commission*, Vol. I, p. 306.
[14]*Report of Minister, 1904*, p. 114.

individual plots should vary from six feet square to six feet by ten according to the age or ability of the pupil. Twenty feet square was suggested as a convenient size for experimental work with potatoes, corn, clover, cabbage, and such crops.[15] Such a size was shown to be quite suitable for some of the Macdonald gardens.[16] Suggestions were also made, with estimated cost, regarding a shed, implements, and vegetable and flower seed.

Speaking of the movement at that time, Mr. William Scott, Principal of the Toronto Normal School, stated that school gardens represented, then, in America, the advance-step in educational work. In spite of the fact that some regarded them as "fads" and "spasms", they were the best of all methods for introducing nature study.[17]

In 1907, the government made special grants[18] available to schools and teachers for carrying on school gardening, and also made arrangements for granting certificates in agriculture to teachers who attended spring or summer courses.[19] Dur-

[15] *Report of Minister, 1906*, pp. 156-157.
[16] *Report of Minister, 1904*, p. xxx.
[17] *Minutes O.E.A., 1906*, p. 319.
[18] See pages 226-227.
[19] *Royal Commission*, Vol. I, p. 307.

ing 1909, a circular of thirty-four pages entitled, "Elementary Agriculture and Horticulture and School Gardens in Rural and Village Public and Separate Schools" was issued.[20]. This contained much explanatory and descriptive matter regarding the subject; in it, school gardens were especially emphasized; several photographs of gardens, including those of the Macdonald Institute, and plans of gardens and plots, were shown.

Some suggestions for planting, as outlined in the circular, are shown in Table II.

TABLE II

SUGGESTIONS FOR PLANTING OF SCHOOL GARDENS

CLASS	FLOWERS	VEGETABLES
Junior First Class Senior First Class	Nasturtium Sweet Peas	Lettuce Radish
Junior Second Class Senior Second Class	Calendula Corn Flower	Beets Spinach
Junior Third Class Senior Third Class	Petunia China Pinks	Beans Carrots
Junior Fourth Class Senior Fourth Class	Verbena Asters	Onions Sweet Corn

[20]Department of Education, *Circular No. 13, July, 1909.*

In the circular, suggestions for equipment, supplies, and a list of helpful books were also given.

At the end of a year, out of the ninety-two who had taken a spring course at Guelph, fourteen had started school gardens.[21] That year, fifteen schools in Ontario qualified for grants.[22] In 1911, thirty-three schools qualified. Besides these, garden work was carried on in connection with many schools which did not qualify for or apply for grants. One hundred and fifty schools purchased seed for school gardening purposes and sixteen others took free material from the Department. Ninety-two schools are known to have taken some active part in this phase of the school work during that season.[23]

As, during that year, Professor S. B. McCready was appointed Director of Elementary Agricultural Education, he could, in this capacity, oversee and promote the work to better advantage. The following year a special circular on Children's Gardening, containing many valu-

[21] *Royal Commission*, Vol. IV, p. 2196.

[22] *Royal Commission*, Vol. I, p. 307.

[23] *Report of Minister, 1912*, p. 231.

For complete list of gardens and related information see *Report of Minister, 1912*, pp. 229-240.

able suggestions, was prepared by the Director, and issued by the Department of Education for distribution to schools carrying on agricultural and school garden work.[24] The Regulations of the same year made the teaching of agriculture the basis of the special grants in place of school gardens merely. Chiefly as a result of these efforts over one hundred schools signified their intention of teaching agriculture, which meant that systematic instruction was to be given in the school as well as practical work carried on in the garden.[25]

The work at the Institute and in some of the schools during these years was apparently well done. In commenting upon nature study and agricultural education in America at this time, Dr. James Ralph Jewell, of Clark University, in an unusually comprehensive summary stated that "the best work is probably done in parts of Canada, where Macdonald Institute furnishes to teachers wishing to become proficient in both matter and method, advantages not equalled anywhere else on the continent."[26] That Sir William Macdonald had apparently done his

[24]*Report of Minister* (Circular No. 13A), *1912*, pp. 241-250.

[25]*Royal Commission*, Vol. I, p. 307.

[26]Jewell, J. R., *Agricultural Education including Nature Study and School Gardens*, p. 13.

part in supplying sufficient funds for equipment and for carrying on the work, is suggested in Dr. Jewell's comment in another connection. "In the new Macdonald Institute at Guelph, Ontario," he says, "is to be found the finest equipment in the world for the teaching of nature study, and school gardening receives a very prominent place in every course offered."[27]

Many interesting and enlightening reports of experiences, showing difficulties and hindrances, helps and encouragements, successes and rewards, needs, plans, and suggestions of the teachers in connection with school garden work at that time were given by Mr. McCready which, on the whole, go to show that although there were difficulties, that in some cases parents, trustees, and inspectors were opposed, the teachers and pupils were almost unanimous in voicing their hearty approval of the work.[28]

Back of the experiences reported were evidences of three great needs: (1) the moral support that should come from an enlightened public understanding of the intention of the work and the methods used, (2) a proper and official status of the school programme of studies, and (3) a

[27] *Ibid.*, p. 29.
[28] *Report of Minister, 1912*, pp. 231-236.

more definite aim and system as in other subjects. That it seemed advisable to include this type of work in the course of studies for the public schools was borne out, in part, by the recommendation of the Royal Commission. After devoting considerable space to discussing nature study, school gardening and agriculture, the report of the Commission continued: "It appears in every way desirable that Nature Study and School Gardening should occupy a place in the course of study of every rural school and of all town and city schools where grounds and facilities can be provided."[29]

With continued and increased interest in agriculture, the large increase in the number of teachers attending summer courses in the subject, the further emphasis of the course in the normal schools, the encouragement given by the Department and the inspectors, and public opinion concerning the subject becoming more favourable, the interest in school gardens gradually increased, until, by 1920, there were over seven hundred schools which had gardens. During the last few years the number has remained approximately the same.

Because of some of the unfavourable con-

[29] *Royal Commission*, Vol. I, p. 144.

ditions existing in many places, of the school fairs, of home project work, and of better opportunities for doing good garden work at home, more attention than formerly has been given during recent years to home gardens. That the interest in these home gardens has deepened, and that their number, as compared with school gardens, has increased greatly is shown in Table I, page 104.

A survey of the school gardens in Ontario at the present time shows that (while six square rods is the minimum size suggested for the grant) they are of various sizes and shapes, depending on the size, shape, and condition of the grounds, the number of pupils, and the attitude of the parents, trustees, and teacher. They contain common vegetables and flowers, usually in individual plots, with, in many cases, some special plots devoted to some experimental work, as that on potatoes, treatment of oats for smut, fertilizers, grains, or particular vegetables, of interest to the teacher, the pupils, or the community. A large number of excellent ones are found scattered all over the province. While the Rittenhouse, Vineland and other school gardens in the Niagara district have, during somewhat recent years, attracted much attention, dozens

of gardens have, in their respective districts, been similarly attractive.

As in the earlier years, some special obstacles still hinder or discourage the general adoption of school gardens as part of the programme of all rural schools. There are the small schools, and the unsuitable grounds; there is the frequent change of teachers, the pressure of examination subjects, the interference of the summer vacation, the lack of teachers with confidence in their value, and the lack of knowledge, of experience, and of enthusiasm in the garden work. Some of these obstacles will in time become less formidable. A special officer—the Director of Elementary Agricultural Education—placed in charge of the agricultural work, all normal schools giving instruction in school gardens, a group of inspectors encouragingly sympathetic towards them, and many teachers enthusiastic regarding them, have been doing much to establish gardens where there seems a likelihood of success.

Chapter VIII

THE HIGH SCHOOLS

AGRICULTURAL education in the high schools was first mooted in 1847. In Dr. Ryerson's Report he referred to agriculture in the Irish National School, to the increased attention the subject was receiving in France and in England, and recommended that the district grammar schools in Ontario should be made to occupy the position and fulfil the function of the French communal and royal colleges and the Prussian higher burgher schools and gymnasia. He suggested that in the course of a few years the population of the principal, if not all, of the districts might each be sufficiently large to sustain and require three model or real schools instead of one, when another division of labour could be advantageously introduced—providing one school for the instruction of intending mechanics, a second for agricultural pupils, and a third for those who might be preparing to become manufacturers and mechanics,[1] for the knowledge required for the

[1] *Doc. Hist.*, Vol. VI, p. 197.

scientific pursuit of agriculture, commerce and mechanics should be provided to an extent corresponding with the demands of the country, while to a more limited extent are needed facilities for acquiring the higher education of the learned professions.[2]

In 1847, a proposed Macdonald Bill provided for the establishment, in the municipal districts, of model farms and the teaching of agriculture in the grammar schools. In the text of this proposed University, or Grammar School Amend ment Bill, it was provided that the grammar school fund should be appropriated and divided in such a manner as "To purchase, in the vicinity of the District Grammar School in each District, a lot of Land, not exceeding Two Hundred Acres, for the purpose of forming a Model Agricultural Farm, for the instruction of the scholars of the several District, and additional Grammar Schools, in the Theory and Practice of Agriculture," and to pay an agricultural teacher for giving instruction to the scholars, and for managing and cultivating the farm. It was also to be enacted that the University Endowment Board should have power and authority to regulate for the grammar

[2]Ryerson, Egerton, *The Story of My Life*, p. 368.

schools the course of study to be followed and the books to be used.

This meant that there were to be twenty agricultural schools and model farms in Upper Canada. In supporting the Bill it was stated that these "must confer unspeakable benefits upon the Country." Dr. Ryerson hoped that "every Christian and sensible man would look at the whole Measure in itself, and its bearing upon the general interests of the Province alone."

While at first the University authorities seemed to be in favour of this University Bill which proposed to unite the district grammar and agricultural schools under one management, later, Mr. Macdonald failed to get the support which he had anticipated, and so on July 26th, 1847, withdrew the Bill.[3]

A couple of years later the matter came up again in connection with the University Bill of 1849. The Honourable (afterwards Sir) John A. Macdonald moved an amendment to the Bill. Part of this amendment included the "establishing and properly endowing an Agricultural School and Farm in each District or Union of

[3] *Doc. Hist.*, Vol. VII, pp. v. 11, 49-51, 55.

Counties, in Upper Canada."[4] The amendment was lost by a vote of fourteen to forty-three.

In 1868-1869, another Grammar School Bill came before the Legislature, and again the attempt to introduce legislation relative to the introduction of agriculture in the high schools was made without success. In the Act of 1871, agriculture was again mentioned as one of the subjects for the high schools. Ryerson's *First Lessons in Agriculture* was to be the text-book. In the First Form, Part I was to be covered, and in the Second Form the book was to be completed. This was not to be obligatory until 1872.[5] But again, as in the case of the public schools, conditions were not ripe for agriculture. It was many years before the people were ready for it, and before capable and qualified instructors were available to teach the subject properly.

Towards the end of the century, because of the advance made in agricultural education abroad, the progress of scientific study in our schools, the addresses and work of prominent educationists and agriculturists, and the influence of the Ontario Agricultural College, a

[4] *Doc. Hist.*, Vol. VIII, p. 141.
[5] *Doc. Hist.*, Vol. XXIII, pp. 109-111, 118.

new interest began to be taken in agricultural education of the type which might be suitable for high schools. Many seemed willing to give it a trial. The Department of Education became hopeful of the issue and in 1898, the textbook in agriculture prepared by Mr. C. C. James, was authorized for use in these schools.[6] It was thought that classes in agriculture might be introduced into many of them. But principals, teachers, parents, and pupils were not yet ready for the work.

In 1904, due in great part to the recommendations of the "Committee of Nineteen,"[7] the Department of Education again took action. In the high school programme of studies, under the heading, "Special Lower School Courses," provision was made for the teaching of agriculture in the schools, and a first and second course outlined. The requirements for this course included experimental plots, a school garden, an arboretum and a science laboratory, and was to be taken only when the staff, the equipment, and the accommodations were adequate.[8] But again it was found to be easier to make suggestions and pass regulations than

[6]See page 91.

[7]See page 95.

[8]*Report of Minister, 1904*, pp. 141-143.

to find school boards, principals, and teachers ready to supply the conditions and equipment, and carry on the work.

The matter, however, was not allowed to rest there. For years, those in authority in educational and in agricultural affairs in the province had realized that the principles underlying the science of agriculture should be taught in our schools. The interest had been aroused to such an extent that Dr. Seath, the Superintendent of Education, and Mr. C. C. James, the Deputy Minister of Agriculture, had each prepared, unknown to the other, a memorandum on the subject along the same lines. Dr. Seath suggested: "Select eight or ten suitable high school centres, offering each a substantial fixed grant for, say, three years, and participation thereafter in a special legislative grant for agriculture. The course in agriculture for high school pupils should include Agriculture, Horticulture, Dairying, Manual Training. . .Veterinary Topics, Art (including Farm Architecture), and should provide in addition a good general English education." The "teacher of agriculture would be a local agent of the Agricultural College and a local centre for the dissemination of agricultural knowledge." Mr. James' recommendations

were: "Select now, say, four young men and also four points at which they would be stationed. Make this proposition to the school boards of these four towns: the Department will provide your High School with a teacher of agriculture for the next three years if you will permit him to organize a class in agriculture in your High School, and also if you will provide him with a small plot of ground for experimental purposes." He further stated that at the end of three years the board of trustees would be expected to continue the work of instruction themselves, and pay for the services of the teacher. This agricultural teacher "should have an office where he could be found for consultation at stated times." He would be the "directing man" in the agricultural societies and institutes in the district, and be the man "on the spot" as a go-between, between the Ontario Agricultural College and the farmers of the community.

The government, acting on these recommendations, arranged for a two-year course, selected six places as centres, the High School at Essex, and the Collegiate Institutes at Lindsay, Perth, Morrisburg, Collingwood, and Galt, and appointed as teachers, six graduates of the Ontario

Agricultural College who commenced work on June 1st, 1907, in the places named.[9]

In the same year, a special circular was issued by the Department, giving a list of "Equipment for Agricultural Departments in Ontario High Schools" with estimated cost.[10] Special regulations (Circular No. 47½) for September, 1907 to July, 1908, for the Agricultural Departments of these special schools were also sent out, giving instruction for admission requirements, qualifications of teachers, duties of teachers, accommodation and equipment, inspection, and course of study.[11]

The object in this effort was to instruct the rising generation so that they "might be trained for farm work; and at the same time to bring the most up-to-date agricultural information to the very doors of the farmers who had not had an opportunity of acquiring it in their youth."

Although each agricultural representative entered enthusiastically into his work, yet, as he did not have the professional training of the other members of the high school staff, and as his

[9]Creelman, G. C., Report of Inspection of the Agricultural Departments in the High Schools. *Report of Minister, 1907*, pp. 952-953.

[10]*Report of Minister, 1907*, pp. 148-154.

[11]*Ibid.*, pp. 155-158.

duties called him during most of his time to his office down town, it was not likely that his subject would be "on a par with the course in English, classics, mathematics and science."[12]

One of the most serious drawbacks, however, connected with the course, was that it opened in the middle of September when the farmers' sons, who were expected to attend, were busy at home on the farm. This meant that the majority of the students (and there were but few of these), were the younger boys twelve or thirteen years of age, who had just passed the entrance examination. Nearly all the other farmers' sons in the school were attending for the purpose of getting away from the farm and took no interest in agriculture.

In a few years the course was curtailed and was made of "a decidedly practical nature" of from four to six weeks, the representatives now abandoning the teaching of classes in their respective high schools, and devoting the time at their disposal to what might be termed extension work[13]—lectures, supplemented by demonstrations, given chiefly to young men.

[12]*Report of Minister of Agriculture, 1910*, p. 42.

[13]Dandeno, J. B., Agricultural Education in Ontario, *The Agricultural Gazette, Jan.-Feb., 1924*, p. 50.

Thus, it was seen that for agriculture to be carried on successfully in the high schools, some method and some arrangement must be made, other than attempting to carry on regular full time classes by such special agricultural teachers.

That it should be attempted in these schools and that our older boys and girls should know something of the subject, seemed quite evident. Agricultural science was advancing. Agriculture was being introduced into the secondary schools of foreign countries. It was now taught in the high schools in the United States, France, Germany,[14] Austria, and Sweden, and the movement was spreading to the east, as to Japan, where by 1904, there were fifty-seven of these schools teaching agriculture.[15] Thus in 1909, an Act was passed granting: "A high school board, a public school board, and a continuation school board, or any one or more of such boards," the privilege of engaging a qualified agricultural teacher (as one holding the degree of Bachelor of Science in Agriculture, or other certificate of qualification from the Ontario Agricultural College, and approved by the Minister), to teach

[14]Graves, F. P., *A History of Education in Modern Times*, pp. 368-369.

[15]Monroe, Paul, *op. cit.*, Vol. I, p. 64.

agriculture in their respective schools. The council of a township, the board of a rural school section, or of a union section, was granted, the same year, a similar privilege with regard to its school. Provision was also made in each case for grants for permanent improvements and maintenance.[16]

In the same year, 1909, the Minister of Education instructed Dr. John Seath, Superintendent of Education for Ontario, to inquire into the systems of technical education in the United States and in some of the countries of Europe, and to bring in a report with suggestions for a "desirable and practical" system for Ontario. Dr. Seath visited the countries mentioned, and after making a careful study of conditions, brought in his report on *Education for Industrial Purposes*, containing several valuable suggestions of changes that appeared to be necessary if our system of education was to be "both modern and adequate."

With regard to agriculture in the high schools, he stated that "the next step in the development of agricultural education would be the establishment of well-organized agricultural departments

[16] *Acts of the Department of Education, 1909*, pp. 83, 93-94,99, 105-108.

in the High Schools and of Agricultural Continuation Schools" and suggested that the "reorganization of the provision for Agriculture" in these, and an extension of the agricultural representative system, as a step towards this end. He further recommended that a special Departmental officer be appointed to act as a director and inspector of the agricultural classes, and "to stimulate the development of such classes throughout the Province."[17]

Following these suggestions, the Industrial Education Act of 1911, provided for agricultural work, and authorized the appointment of an Advisory Industrial Committee of eight persons to manage and control the work done in agriculture in a high or continuation school,[18] provision also being made for instruction and maintenance.

Thus, an effort was made, in Ontario, to offer in connection with the general provisions for secondary education, an organized course for those remaining in rural life. The purpose was to offer a distinct two-year course at the secondary schools which would have agricultural and

[17]Seath, John, *Education for Industrial Purposes*, pp. iii-v, 315-316, 321, 347.

[18]Industrial Education Act, *Acts of the Department of Education, 1914*, pp. 183-188.

rural needs and interests as its central problem. In this course as many as possible of the more general and purely cultural subjects were to be taken.

In order to secure for agriculture its due share of attention, experience had shown that the teacher of the subject must be a regular member of the staff. Hence, provision was made in 1912, under special arrangement with the Ontario Agricultural College, the Department of Education, and three Universities of the province—Toronto, McMaster, and Queen's—by which students taking the first two years in science at the University would be permitted to take the last two in agricultural science at the Ontario Agricultural College, and obtain the degree of Bachelor of Science in Agriculture (B. Sc. in Agr.), [B. Sc. (Agr.)], and qualify for specialist standing in both science and agriculture.[19] Science masters would then be able to introduce agriculture into our high schools. This course, though apparently well suited to meet the needs, was never popular. But few have taken it.

In 1913, arrangements were made by the Department of Education whereby science teachers in the continuation and high schools might

[19]*Report of Minister, 1912*, p. 272.

be specially trained for the work by taking a two years' summer course at the Ontario Agricultural College, leading to the Intermediate Certificate in Agriculture. Twenty-one high school science men attended the first session, and two schools, Exeter Continuation School and Arthur High School, commenced work at the opening of the school in September.[20] During the year, eleven other schools introduced the subject.[21]

To help provide instruction in agriculture, the Dominion Government, in accordance with the suggestions of the Royal Commission that early efforts be made to establish or extend intermediate rural classes and suitable rural high schools for pupils from thirteen years of age up, passed in the same year, 1913, the Agricultural Instruction Act (discussed in connection with summer schools and in the chapter on grants and aids), which made provision for large sums of money to be placed at the disposal of the province for agricultural education.

As a result of reports, of the general interest in agricultural education at home and abroad, of the general development in technical and in-

[20] *Report of Minister, 1913*, p. 649.
[21] *Report of Minister, 1914*, p. 692.

dustrial education, the possibility of more teachers being trained at summer schools, and of the Agricultural Instruction Act, more definite provision was now made for teaching agriculture in the lower and middle school classes of our high schools. In the Regulations of the Department of Education, issued in 1914, nearly eight pages were devoted to the regulations and courses of study for agriculture and horticulture. These Regulations stated that, "The instruction shall be given by a science teacher who holds the degree of B.Sc. (Agr.) or an Intermediate certificate in Agriculture, or by the District or Assistant District Agricultural Representative,"[22] but should not be undertaken unless there were at least six pupils in regular attendance in the class of each year.

About 1914 and 1915, it was thought that with the revised course of study, the persistent and capable work of the Department of Agriculture—through the Farmers' and Women's Institutes, the agricultural representatives, school fairs, and winter short courses; of the Department of Education—through the Inspector of Elementary Agricultural classes, other

[22] *Regulations and Courses of Study, High Schools, 1914*, pp. 35, 38, 96-103.

inspectors, the trained teachers: and to no small extent, through the thoughtful and sympathetic support of such work by the agricultural papers of the province, that there was a change of attitude of the people of the rural communities towards agriculture, and that they would be far better prepared than formerly for the introduction of the subject into their schools. This attitude seemed so marked, that, with the congested condition of many of the continuation schools, where forty-nine per cent. of the pupils were from the farm, and where, in the natural course, the majority would return to the farm, with the increased attendance in many of the high schools and collegiate institutes in the rural districts, where, for years back, a larger percentage of pupils had come from the farm than from any other occupation,[23] and with the favourable opinion of leaders in many districts, towards agriculture, it seemed an "opportune time for energetic action" in that direction[24]. This was taken. A few of the schools responded, took up the work enthusiastically, and met with considerable success, but the attempt to introduce the subject on a large scale did not yet

[23] Bell, Walter N., *The Development of the Ontario High Schools*, p. 9.
[24] *Report of Minister, 1915*, pp. 23-24.

meet with the approval of the people as a whole.

More recent attempts and changes in the regulations have met with similar results. In 1921, an interim report of a committee on high school education recommended that agriculture may be taken instead of botany and zoology in the lower school, and instead of chemistry and physics in the middle school, and that a course in agriculture be prepared.[25] By the Vocational Education Act of that year,[26] authority was given to establish a "department of the agricultural high school type" and to appoint an advisory agricultural committee to act similarly to the committees appointed for the industrial, technical, commercial, or other vocational committees, with similar powers of management. These agricultural high schools and departments, according to the recommendations, were planned to meet the needs of boys and girls who expected to be occupied in farming, dairying, stock-raising, fruit growing, or gardening.[27]

As the Director of Agricultural Education visited many of the schools, and discussed with

[25] *Interim Report of the Committee of High School Education*, pp. 7-9, 12.

[26] See page 237.

[27] *Recommendations and Regulations for Vocational Schools, 1922*, pp. 10, 11, 16, 24, 25, 38, 39.

the principals and members of the board the matter relative to the introduction of agriculture, he found them generally disposed towards it, some enthusiastic over the prospect, apparently realizing its importance, but several difficulties presented themselves which made many of the principals and staffs hesitate to establish a good strong course which would likely be permanent. Some of these difficulties were: (1) An already too crowded programme in the lower school. (2) Two hours a week implied four periods, and this did not seem to lend itself to convenient arrangement of the time-table. (3) Latin as a bonus subject had the advantage of agriculture in that it led to matriculation in the middle school. (4) Art was fortified as a bonus in both the middle and upper school, because it was an obligatory course in the lower school. (5) There were very few qualified teachers of agriculture (6) The course did not appear to fit in well with the general arrangements, as our higher schools seemed planned for the minority. They prepared pupils for the professions.[28]

Although grants[29] for expenses while attending summer schools, and of from $80 to $120 per

[28] *Report of Minister, 1916*, pp. 85-87.

[29] See chapter on "Grants and Aids", for fuller treatment.

annum to each teacher, according to grade of certificate, for teaching the subject, and of $100 to the board for each course carried on, has been available and has aided in securing a considerable number of teachers and inducing some schools to take up the work, although the Director of Agricultural Education has been steadily and enthusiastically promoting its claims, although the Department of Education has been providing courses and issuing more favourable regulations, although many continuation and high schools are favourably located, and although inspectors and teachers generally are sympathetic and willing to aid in the work, yet the advance has been comparatively slow. The number of high schools which have taught agriculture and have qualified for grants between 1915 and 1926, is shown in Table III.

By referring to this table, it can be seen that in 1926, only sixty-seven schools (and this was out of a total of about three hundred and seventy), were giving instruction in agriculture. It can also be seen that for years, until 1923, the increase was slow. Between that time and 1926, the number of schools teaching agriculture doubled. One of the reasons that aided this was the increase in the number of qualified teachers.

TABLE III

HIGH SCHOOLS QUALIFYING FOR GRANTS 1915-1926[30]

	No. Schools	With Plots	Without Plots
1915—Jan.-June	11		11
Sept.-Dec.	15		15
1916—Jan.-June	15	1	14
Sept.-Dec.	20	1	19
1917—Jan.-June	20	7	13
Sept.-Dec.	21	7	14
1918—Jan.-June	21	16	5
Sept.-Dec.	26	18	8
1919—Jan.-June	23	16	7
Sept.-Dec.	30	23	7
1920—Jan.-June	32	29	3
Sept.-Dec.	25	24	1
1921—Jan.-June	21	17	4
Sept.-Dec.	28	17	11
1922—Jan.-June	29	27	2
Sept.-Dec.	30	27	3
1923—Jan.-June	26	22	4
Sept.-Dec.	33	24	9
1924—Jan.-June	37	26	11
Sept.-Dec.	39	27	12
1925—Jan.-June	44	30	14
Sept.-Dec.	50	31	19
1926—Jan.-June	50	31	19
Sept.-Dec.	67	35	32

Another, accepting agriculture as an optional subject for entrance into the normal schools and

[30]*Report of Minister, 1926*, p. 43.

for matriculation for medicine, dentistry, and engineering.[31] Since 1924, it has been accepted also as an option against physical science for junior matriculation in arts, commerce, pharmacy, and music.[32] That puts it on a par with other school subjects.

The 1928 report shows that there were in all eighty-one schools, still less than one in four, teaching agriculture. Seventy of these were the collegiates, high schools and continuation schools maintaining classes under the scheme already described, in which agriculture might be taken as an option in place of biology and physical science—a four-year course (elective classes). Seven had departments of agriculture under the High Schools Act dating back to 1912, a two-year course. Four more were carrying on under the Vocational Education Act of 1921, a two-year plan. In the latter case, financial assistance is given for building accommodation as well as for maintenance. More than half of these schools have school plots.[33]

That training in agriculture seems necessary to keep pace with "the demands of modern life"

[31] *Report of Minister, 1923*, p. 56.
[32] *Report of Minister, 1924*, p. 38.
[33] *Report of Minister, 1928*, pp. 38-39.

hardly needs to be emphasized. Because of the benefits, educationally and commercially, which it imparts to students, and the public generally, it would seem helpful to give it in the high schools. For it to be carried on successfully in these schools it has been suggested that it would appear advisable to have a teacher with special training for teaching "vocational agriculture on the project basis," and that the programme of studies should round out a good vocational course on rather broad outlines, the privilege being given to work out the details of the course suitable to local needs.[34]

The outlook for aiding in this work in the high schools is brighter, but if progress is to be rapid, the utmost energy must be devoted to developing schools of an agricultural type.

Among the most recent and comparatively successful practical attempts to solve the problem are the Kemptville Agricultural School and the Ridgetown Agricultural Vocational School discussed in the chapter on "Special Schools."

[34]McMillan, George, *The Agricultural High School in Ontario*, pp. 58, 62, 87.

Chapter IX

THE ONTARIO AGRICULTURAL COLLEGE

AN institution which has had much to do with the progress of agricultural education in the public and higher schools, and has furthered the study of scientific agriculture generally, in Ontario, is the Ontario Agricultural College and Experimental Farm founded at Guelph in 1874. The College came, not as the result of a popular demand by the people whom it was supposed to help, but rather as a "case of statesmen discerning a want and striving to supply it." It was a case of "Governmental action preceding popular agitation." There was need for an improved agriculture. This implied education in agriculture. The University was not giving it. Secondary schools were not supplying it. European countries, notably Germany, had saved their agriculture by it. The United States had moved generously regarding it.[1] Ontario must not lag.

[1]McCready, S. B., How the Rural Schools can be Helped by the Ontario Agricultural College, *Minutes, O.E.A., 1908*, p. 362.

Reverend W. F. Clarke of Guelph, editor of *The Ontario Farmer*, owing chiefly to the impetus given to agricultural education in the United States at the close of the Civil War, began an agitation in his paper for an agricultural college in Ontario, and was commissioned in August, 1869, to visit the leading agricultural colleges in the United States and the Department of Agriculture at Washington, to enquire into the matter of agricultural college education, and bring in a report with suggestions to the Government.

His report was presented in 1870,[2] and in 1873, purchase was made of the five hundred and fifty-acre Moreton Lodge Farm of Mr. F. W. Stone of Guelph.[3] The farm was on an elevation of land, in a good state of fertility, in a pure bred stock centre, and was considered to be admirably fitted for such an institution.[4]

The fine two-storey residence, the present centre of the college building, was soon transformed, with additions, into class rooms, dormitories, and other necessary apartments ready for operations.

[2]*Hist. Ed. Pap. and Doc.*, Vol. II, pp. 214-219, 221.

[3]Mason, T. H., Early Days at the O.A.C., *O.A.C. Review, Mar., 1920*, pp. 321-322.

[4]*Sch. and Coll. of Ont.*, Vol. III, p. 327.

On May 1st, 1874, the Ontario School of Agriculture opened its doors with Mr. H. McCandless, who had filled the Chair of Agriculture at Cornell University, principal, and Reverend W. F. Clarke, author of the scheme, rector. Thirty-one students entered. Owing to the resignation of Mr. McCandless in July of that year, the work was taken over temporarily by Mr. William Johnston, a graduate of Toronto and Edinburgh Universities.

In April, 1875, Mr. Charles Roberts, of Surrey, England, a prominent graduate of Cirencester Agricultural College, was appointed principal. He came to take charge, but, owing to sudden illness, resigned after one day's active service.[5] Mr. William Johnson then became principal. He was a man of energy and ability, a hard worker, and a good disciplinarian. He supervised the work on the farm, classified the work in the different departments, lectured several hours a day, received "thousands of visitors", and "wrote by hand two to three thousand letters a year."[6] When he resigned in

[5]Zavitz, C. A., History and Development of the O.A.C., *O.A.C. Review, Sept., 1921*, p. 1.

[6]Half Century of the O.A.C. (Half Century of the O.A.C., Ontario Agricultural College, *Semi-Centennial of the College*), *June, 1924*, pp. 1-3.

1879, after five years' service, the attendance had increased to one hundred and sixty-two, with others being refused for lack of accommodation.

In the autumn of that year, the name of the school was changed from The Ontario School of Agriculture, to the Ontario Agricultural College. Mr. (later known as Doctor) James Mills, a medalist of Victoria College, and principal of the Brantford Collegiate Institute, was appointed President, and assumed duties on the first of October, 1879.[7]

Until about 1884, the College lingered along in a way that was unsatisfactory to the people of the province, who were dissatisfied with the College as a whole. It was not reaching the people. In 1885, the Farmers' Institutes were started. The College sent its professors out to get in touch with the people through these Institutes. It was about this time, ten or eleven years after its inception, that real progress in the College commenced, and its influence began to be felt.

In 1887, the Ontario Agricultural College became affiliated with the University of Toronto, and the course was extended from two to three

[7]Zavitz, C. A., *op. cit.*, p. 2.

years. The next year five men graduated as the first class for the B.S.A. degree. Among these were C. A. (now Doctor) Zavitz, until recently, Professor of Field Husbandry and Director of Plant-breeding and of Field Experiments, and G. C. (later Doctor) Creelman.

Another means of extending its influence and of reaching the people was inaugurated in 1891. In June of that year, the College sent out two men in a wagon provided with full equipment for butter-making. These travelled from place to place giving demonstrations and instructing the people. This proved so successful that more such outfits were sent out year after year.[8] This was the beginning of our travelling dairy.

In 1902, to the three-year course another year was added, but no standard of admission was exacted until 1920, when those entering for the degree course were required to hold pass matriculation certificates.[9]

In 1904, after his splendid record of nearly a quarter of a century, during which time great progress had been made, and several new buildings, as the convocation hall, animal husbandry building, Massey Hall and library, and the

[8]Jewell, J. R., *op. cit.*, p. 98.
[9]McNab, G. G., *op. cit.*, p. 98.

Macdonald Hall and Institute had been added, Dr. Mills accepted appointment as a member of the Dominion Railway Board, and retired from the Presidency, being succeeded by Mr. George C. Creelman.[10]

President Creelman had taken the course at the Ontario Agricultural College, and later spent nine years as Professor of Biology at the Agricultural College of Mississipi, and just previous to his appointment had been Superintendent of Farmers' Institutes in Ontario. Another period of expansion followed. "It was an all-round expansion." Several new buildings—the poultry building, field husbandry building, and the physics building—were built, and the "Mills Hall", and the apiculture building, started shortly afterwards. Departments were enlarged and extended. In 1907, the "Agriculture Representative System "started with seven graduates sent out. Summer courses in agriculture for public school teachers were established. About 1912, "School Fairs" were organized. In 1913, courses were provided for high school and normal school teachers, and later for public school inspectors. "June excursions" of farmers also reached their height during this period, with

[10]*Half Century of the O.A.C.*, pp. 7-8.

forty thousand visitors in one month. These excursions to the farm not only popularized the College but benefitted the farmers, who were brought where they could see what was being done, and sent home with the impressions received.

The war came. President Creelman was away part of the time, and Dr. C. A. Zavitz officiated as Acting-President during his absence. In 1920 Dr. Creelman accepted the position of Agent-General for Ontario in London, England, After sixteen years of service, his position was filled by Mr. J. B. (now Dr.) Reynolds. Mr. Reynolds had joined the college staff in 1893 as Dean, and had afterwards been Professor of English and Physics, and later of English alone, until 1915, when he accepted the Presidency of the Manitoba Agricultural College.

The "after the war reconstruction period" arrived, with its "new complexities and problems." Work was not as easy as before. Attendance and equipment, however, again advanced. The Mills Hall and apiculture building, started in previous years, were completed,[11] and a fine well-equipped dairy building, together with other

[11] *Ibid.*, pp. 8-12.

structures mentioned later, were added during his term of office.

In 1928, after eight years of service as President, and thirty years' association with the College, Dr. Reynolds resigned and was succeeded by the sixth (or omitting the short Presidency of Mr. Roberts, the fifth), and present President, Dr. G. T. Christie, who was called from an important position on the extension staff of Indiana State College.

The value to the province of this institution is inestimable. Agriculturists have been helped in innumerable ways by the numerous departments, each of which has its distinctive field of teaching, experimenting, and operating. By 1908,[12] there were three husbandry departments —the so-called field, animal, and dairy; three biological departments—botany, entomology, and bacteriology; the physical and chemical; the horticultural, forestry, and poultry; and the English, mechanical, domestic science and nature study. Others, as the economics and apiculture departments, have been added later.[13]

To mention only a few of the benefits: The

[12]McCready, S. B., *op. cit.*, p. 363.

[13]*Calendar O.A.C.* (*Ontario Agricultural College*), *1928-1929*, pp. 10-20.

chemistry department has done much helpful research work in connection with soils, fertilizers and foods; the botany department has given much valuable information about weed control and plant diseases; the entomology department about insect control; the bacteriology, concerning bacterial diseases and legume bacterial cultures; the dairy, about cow testing and dairy work; the horticulture, about fruits, vegetables, landscape gardening and floral culture; the farm mechanics, in manual training, including metal-working and wood-working; and the Macdonald Institute, in home economics. The department of animal husbandry has aided through its live stock work, and has brought international honour to the College and to Ontario through the trophy-winning, stock-judging teams which have gone to the International Live Stock Expositions. The poultry department, through breeding, has improved the type of fowl and increased greatly the production of eggs. The field husbandry department holds a unique position. It has grown until now there are over two thousand five hundred experimental plots covering eighty-five acres. Material for experiments has been sent out to more than one hundred thousand farmers, and the results tabulated. Many

varieties of grain have been originated or improved, and brought into general use. The value of the increased acre yields of grain during the twenty-one years ending 1923, has been computed at $161,049,877.71, or over thirty times the net expenditure of the Ontario Agricultural College from the commencement until that time.[14] The farmers of Ontario have doubled their output since the founding of the College without any appreciable increase either in population or acreage.[15]

From a small beginning with a two-year course, a little over half a century ago, the Ontario Agricultural College and Model Farm has grown to be one of the leading agricultural colleges on the continent. Over thirty courses are given. Among others are: the four-year course leading to the degree of B.S.A. (Bachelor of Science in Agriculture); the five-year course leading to the same degree for non-matriculants; and the two-year course for the Associate Diploma, to meet the needs of scientific agriculture, chiefly for those intending to go into farming.[16]

[14]Zavitz, C. A., Leading O.A.C. Varieties of Grain Crops, Ontario Department of Agriculture, *Circular No. 42, Nov., 1923*, p. 4.

[15]Jewell, J. R., *op. cit.*, p. 117.

[16]*Calendar O.A.C., 1928-1929*, p. 21.

Again, from a small number of professors and assistants manning a few departments, the number has gradually increased until there were, in 1929, eleven administrative officers, sixty-five on the permanent faculty and laboratory staff, nineteen on the permanent research and extension staffs, with thirteen more on an additional and temporary staff.[17]

The farm has been enlarged until it now contains seven hundred and seventeen acres, two hundred of which are occupied by buildings, grounds, and experimental plots, while the remainder is in the farm proper, which is well stocked with large herds and flocks, including on the average, about one hundred and fifty cattle, two hundred hogs, and one hundred sheep, representing the leading breeds, kept for instruction, investigation, and distribution purposes.

Including the Veterinary College, added in 1922, the Memorial Hall, constructed by funds, partly contributed by the old boys, and opened in 1924, and the recently built Trent Institute, erected by the Bread and Cake Bakers' Association, assisted by the Allied Trades,[18] there

[17] *Ibid.*, pp. 4-7.
[18] *Calendar O.A.C., 1927-1928*, p. 14.

are now (besides the barns, stables, storage houses, and dwellings), twenty-two large and well-equipped buildings dotted here and there around the campus.[19]

From thirty-four, thirty-two, and forty students during the first three years, the attendance increased until in 1921-1922, the registration in all courses totalled two thousand two hundred and sixty-eight.[20] For 1927-1928, the attendance was one thousand five hundred and twenty-eight.[21]

The Experimental Union, connected with the College, formed in 1879, "for the purpose of encouraging the scientific study of farm crops and farm operations" among the students, has grown until, by 1928, there were eleven of these experimental union committees, each planning and carrying on work in its own department. In the field husbandry department alone, there has been a total of 113,485 distinct co-operative tests, conducted on as many Ontario farms. This has meant the growing, harvesting, threshing, cleaning, grading, and handpicking of not less than 300,000 seed lots.[22]

[19]*Calendar O.A.C., 1928-1929*, p. 9.

[20]*Report of the O.A.C., 1921*, p. 8.

[21]*Calendar O.A.C., 1928-1929*, p. 98.

[22]*Report of the Ontario Agricultural and Experimental Union, 1927*, pp. 5-6.

While the College has taught its tens of thousands in the class room and college halls, it has reached its hundreds of thousands outside. Starting with the twelve men who went out in 1885 to address Farmers' Institutes, scores of professors and other speakers have gone out year after year since to speak at the various meetings. Before the end of the century the Farmers' Institutes had a membership of over 16,000,[23] while in 1913, the year before the beginning of the Great War, they had 18,690 members. During the year 1913-1914, there was at the meetings an attendance of 92,660.[24] Shortly before the beginning of the century, the Women's Institutes were organized. These have developed and surpassed the Farmers' Institutes in interest and attendance. At their thirtieth anniversary, held at Stoney Creek in 1927, most gratifying and enthusiastic reports were given, showing for the year a membership of 36,321, with 11,062 meetings held, at which there was an attendance of 240,398.[25]

It just needed the help that Sir William Macdonald gave, to bring the College in touch with the public schools. Starting with his

[23]See page 91.

[24]*Report of Farmers' Institutes, 1914*, pp. 7, 10.

[25]*Report of Women's Institutes, 1927*, pp. 3, 18.

Institute in 1903, followed by the training of teachers for nature study, school garden, and other agricultural work, the College has influenced tens of thousands of teachers, inspectors, and pupils. The agricultural representatives, with their work in the high schools, through their offices, school fairs, and other phases of work, have helped old and young in all parts of the province.

In 1909, a schools' division of the Experimental Union, which aimed at adapting the work of the Union to the needs of the schools, giving boys and girls a training in careful work and observation, along agricultural lines, was organized.[26] The Union distributed books and bulletins, flower and vegetable seed, grain, bulbs, shrubs, vines, and forest tree seedlings. It issued sheets to teachers and circulars for pupils. In the first year of its existence, about one hundred and fifty schools, representing over six thousand children, carried out garden exercises under the direction of the Union.[27] By 1914, nearly five hundred schools, representing fifty

[26] *Report of Minister, 1912*, p. 249.

[27] McCready, S. B., Some Agricultural Tendencies in Education, *Minutes O.E.A., 1910*, p. 300.

counties or districts, were connected with the organization.[28]

The results of the distribution were manifold. Many progress clubs were organized, which helped to keep the schools and school grounds tidy, make repairs, look after school gardens during the summer holidays, conduct experimental plots, introduce new strains of poultry and grain, develop leaders through meetings, and train for service a good type of citizen for co-operative work in our rural districts.

This important and fast-growing work soon became merged into a similar one developing along the same lines, the nature study, agriculture, and school fair work. Through the teachers, the agricultural representatives, and the school fairs, it has been expanding ever since. In the chapters on "Progress in the Public Schools," and "Rural School Fairs," are shown some of the results of the developments of this type of work.

Now, and for years past, the Ontario Agricultural College has had the confidence and good-will of the majority of our leading agriculturists and has been recognized as one of the

[28] *Report of the Ontario Agricultural and Experimental Union, 1914*, p. 49.

greatest helps to our progressive rural population. The course of study, including the practical and experimental, is well adapted to the needs of the various classes of students who attend. The scientific methods of the basic industry of our country are being brought to the attention of the farmers. Many bulletins and circulars, which contain up-to-date information on research work, are being placed at the disposal of all who desire them. The students have come and are coming in large numbers. Many of the best farmers of Ontario attribute much of their progress and success to this institution, which is shedding its light into the rural homes of even the remotest parts of the province.

Chapter X

SUMMER AND TRAINING SCHOOLS

THE SUMMER SCHOOLS

APPARENTLY the first of the summer schools in agriculture for teachers was held at the Ontario Agricultural College in 1893.[1] Believing that valuable instruction in the subject might be given by simple lectures to children, the Honourable John Dryden, Minister of Agriculture, at that time, in co-operation with the Minister of Education, instructed the staff of the College to offer to the teachers of Ontario a short course of instruction in agriculture and the sciences most closely related thereto. The course commenced on Monday, July 3rd, and continued for four weeks. Thirty-four teachers attended. Owing to a change in the regulations regarding the teaching of the subject in the schools, only seven teachers attended next year, and the classes were discontinued.

[1]Leake, A. H., *The Means and Method of Agricultural Education*, p. 12.

In 1904, to prepare teachers for an enlargement of the work connected with the Macdonald school gardens, a summer school for teachers connected with nature study, school gardens, and agriculture was held at the Macdonald Institute.[2] During this and the next succeeding years, the nature study phase of the work, especially, was emphasized.[3] As part of the course, short excursions were taken to study the common trees, weeds, birds, insects, and rocks, and special instruction and practice was given in school gardening.

By 1907, arrangements were completed by which the summer schools were carried on under the direction of the Department of Education, the term consisting that year of four weeks, commencing on Tuesday, July 2nd, and closing on Saturday, July 27th. The announcement[4] concerning the summer school stated that instruction would be given in three distinct courses: nature study (correlated with art and constructive work), manual training, and household science, any one of which might be selected by the students.

In 1909, besides a course in nature study with

[2]See page 116.

[3]*Sch. and Coll. of Ont.*, Vol. III, p. 352.

[4]*Report of Minister, 1907*, pp. 139-142.

an attendance of fifty, a course in "Elementary Agriculture" was given, with an attendance of six. This was the beginning of the summer courses in agriculture proper, which have been continued to the present time, and marks also the date of the definite beginning of the present day teaching of agriculture in the public schools.[5]

Next year, there were in all one hundred and twenty students in attendance at the summer school of whom sixty took the courses in nature study and elementary agriculture.

As more attention now began to be paid to agriculture, in 1911, a more definite course in that subject, including such topics as school gardening, botany, field husbandry, physics, agricultural chemistry, bacteriology, and entomology, was organized.[6] It consisted of two parts covered in consecutive years, each session consisting of five weeks, beginning about the first Monday in July. The course led to the elementary certificate in agriculture, and qualified teachers to teach agriculture in the public schools. In that year, nearly two hundred attended, of whom one hundred and two took the nature study and agricultural courses. Up

[5]Dandeno, J. B., *op. cit.*, pp. 49-51.

[6]*Syllabus of Studies, Summer Schools for Teachers, 1911*, p. 5.

to the end of 1911, two hundred and thirty-five certificates in elementary agriculture and horticulture had been issued. In 1912, one hundred and six took the course, in 1913, one hundred and nineteen.

One of the interesting and suggestive features connected with this summer work was the scheme of reading, study, and experimental work for the intermediate months while in active service in the schools, which Professor McCready who had been in charge of the work since 1905, had planned as a means of re-inforcing and supplementing the work done during the summer session. From a list of suggested books, six were to be selected, read, and synopsized. The synopses were to be handed in at the beginning of the second session, examined, and given back to the owners.[7]

The Dominion government grant of $10,000-000 (discussed in the chapter on "Grants and Aids"), beginning in 1913, gave, by aiding in free transportation and board, further impetus to the popularity of, and attendance at the summer schools.

In that year, a course in two parts—Part I including agricultural chemistry, physics, botany,

[7] *Report of Minister, 1912*, pp. 228-229, 701.

bacteriology, entomology, bee-keeping, and poultry husbandry, and Part II dealing with horticulture, field husbandry, dairying, and animal husbandry—was provided for high school teachers.[8] Upon the completion of this course, the teacher was granted an intermediate certificate in agriculture which qualified him to teach agriculture in continuation and high schools and in collegiate institutes.[9] Science men and normal school masters from now on began to take this course. The course, as also that for the public school teachers, continued year after year, and is still given during the summer sessions. Many teachers have availed themselves of this opportunity of improving their academic standing, and of preparing themselves to teach agriculture in the public and higher schools.

During the first week of August, 1913, an Inspectors' Short Course and Rural Education Conference was held at the Ontario Agricultural College. Eighty inspectors attended. The course included instruction in agriculture by the College staff, and joint meetings with the teachers attending the summer school. Chief emphasis was placed upon the teaching of agri-

[8] *Report of Minister, 1913*, pp. 213-214.
[9] *Ibid.*, pp. 211-213.

culture and rural school betterment. Addresses and discussions on consolidation and rural school administration were also important features of the course.

Two years later, in order to give these inspectors further training, a short course covering two weeks was given them at the College.

Five years later (in 1918), the inspectors attended the regular summer school and took the course leading to the intermediate certificate in agriculture. Seventy-nine attended that year. Others, including new appointees, have, as opportunity has permitted, attended more recently, and completed the course. Thus, all the inspectors, with but few exceptions, have now practical training in agriculture.

Beginning in 1917, a course in farm mechanics, including practical work connected with manual training, the forge, leather sewing, rope splicing, and Portland cement, was given at the Ontario Agricultural College, commencing on August 6th, immediately at the close of the other summer session, and continuing until August 31st. This course was taken by teachers who held or were in preparation for an intermediate certificate in agriculture. Ten took the course the first year.[10]

[10] *Report of Minister, 1917*, p. 82.

The farm mechanics course was continued annually, with about the same or slightly smaller attendance, until 1921, since which time it has been given less regularly.

In 1918, a course for specialist's standing in agriculture[11] was held at the time of the other courses. Nine men completed their attendance that year, and covered the work required, except the thesis which was to be completed after a year of research work outside the College. Since that time, the course has been given periodically, when a sufficient number of students have registered to make it appear advisable to put on the work. Thirty-two, including two normal school masters, have now (1930) been granted this Specialist's Certificate in Agriculture.

By 1918, the attendance at the summer school at Guelph had so increased that it was necessary, if all who applied might attend, that another centre be secured to help accommodate the students. The Ontario Ladies' College, Whitby, —with its ample dormitories, class rooms, dining hall, farm, orchard, and garden—in proximity to the Whitby High School which was well equipped with agricultural laboratories, was chosen as most suitable for such a school, and

[11] *Report of Minister, 1918*, pp. 111-114.

arrangements were made by the Department of Education to have the female students living east of Toronto take Part I of the elementary course there in 1919. Mr. George S. Johnson, Principal of the Whitby High School, was appointed principal. He, with three assistants, carried on the work with the seventy students present that year, so satisfactorily, that the teachers attending petitioned to have the opportunity of coming back the following year for the second part of their course.[12] The request was granted. The following year, one hundred and fifteen attended, sixty-nine of whom took Part I, and forty-six Part II. Besides the regular work, one of the outstanding features of the course this year was the school garden. Also, in addition to lectures from outside speakers, trips were taken to neighbouring farms, schools, and other places of interest, and a visit was made to the Ontario Agricultural College at Guelph.

Similar instruction was carried on year after year at this centre until 1923, after which date, owing to the pay for travelling and living expenses at these summer schools being withdrawn,

[12] *Report of Inspector of Elementary Agricultural Classes, 1919*, pp. 40-45.

the attendance at the agricultural summer schools dropped suddenly to such an extent that the school at Whitby was discontinued.

Classes similar to those at Whitby were also carried on at the Northern Academy, at Monteith, in Northern Ontario,[13] from 1920 to 1923 inclusive, and have been given at the Kemptville Agricultural School[14] since 1922. At Monteith, Mr. H. E. Ricker, of the North Bay Normal School, was in charge for the first year, after which time Mr. George S. Johnson, who had been appointed principal of the Academy, became principal also of the summer school until its close. During the earlier years a number of students from Southern Ontario were permitted to attend this northern school. Later, after 1923, when the attendance was confined chiefly to the north, and the government aid for transportation and lodging was withdrawn, the summer school became so small that it was thought wise to discontinue the classes in that place. At Kemptville, the first summer school (Mr. C. E. Copeland, principal), was held with seventy-one lady students in attendance.[15] Since

[13]See Chapter XII, "The Monteith Farm and Northern Academy."

[14]See Chapter XII, "The Kemptville Agricultural School."

[15]Report of Inspector of Elementary Agricultural Classes, *1922*, p. 19.

that time, with the exception of a couple of years, the attendance has kept up well. As the school is located near the main line of the Canadian Pacific Railway between Toronto and Montreal and on a good highway, the location is quite suitable for teachers. This, with the general interest in agricultural education in eastern Ontario, the co-operation given by the regular staff, and the equipment for practical work at the Kemptville Agricultural School, has helped to make the school a success from the beginning.

During all these years the summer schools at Guelph and elsewhere have been quite popular. While covering the work of the courses has always been the chief consideration—and this has been taken under the most healthful and pleasurable conditions—the social and recreational features of these schools have also been emphasized. Occasional open concerts, impromptu entertainments, athletics, games, trips, and special field-day events have been most interesting and enjoyable.

The attendance reached its maximum at the College in 1919, when it was, for all courses, four hundred and eighty-two. This attendance at Guelph, together with that at the other

schools, kept up well until 1923, after which time it suddenly dropped to about half. Recently the attendance has been increasing again, the course apparently being attractive to many who believe that by rounding out their academic qualifications in this way, their opportunity for doing more effective work, securing better positions, and receiving larger grants, will be materially enhanced.

Tables IV,[16] V, VI,[17] and VII,[18] show the attendance in the various courses in the different schools from 1911 to 1928, inclusive. It is of interest to see the effect of the grants in increased attendance from 1913 to 1923, and to note the number of courses that were successfully inaugurated during that period.

[16] *Report of Minister, 1928*, p. 39.
[17] *Report of Minister, 1926*, p. 45.
[18] *Report of Minister, 1928*, p. 40.

TABLE IV

ATTENDANCE AT THE ONTARIO AGRICULTURAL COLLEGE SUMMER COURSES IN AGRICULTURE, 1911-1928

Year	Elementary				Intermediate					Inspectors Parts		Farm Mechanics	Total
	I		II		I		II		III				
	Men	Women	Men	Women	Men	Women	Men	Women	Men	I	II		
1911	8	75	1	16	....	....	....	...	...	...	...	...	100
1912	16	65	2	23	....	....	....	...	...	...	...	...	106
1913	14	64	5	36	23	4	....	...	...	...	...	...	146
1914	8	55	5	27	13	4	14	...	...	...	...	...	126
1915	15	39	5	18	17	1	9	1	...	...	...	...	105
1916	11	99	9	31	15	3	14	1	...	...	...	...	183
1917	15	138	7	81	9	1	13	2	...	...	...	10	276
1918	6	187	6	118	22	11	9	...	9	33	46	9	456
1919	16	155	6	160	9	19	14	7	...	52	34	10	482
1920	31	121	11	133	19	13	19	8	...	2	6	8	371
1921	62	167	36	86	20	16	16	8	7	4	...	7	429
1922	54	175	27	151	10	11	14	15	...	6	4	...	467
1923	12	54	20	109	9	3	7	7	...	1	6	...	228
1924	6	37	11	40	7	4	9	5	...	1	1	...	121
1925	9	61	8	33	24	14	6	4	5	1	2	...	167
1926	19	55	14	50	19	10	19	10	...	3	3	...	202
1927	9	36	15	58	25	14	25	15	5	1	6	6	215
1928	16	36	6	63	22	27	30	20	...	2	4	...	226

TABLE V

ATTENDANCE AT THE WHITBY LADIES' COLLEGE SUMMER COURSES IN AGRICULTURE, 1919-1923

Year	Part I Elementary	Part II Elementary	Total
1919	70	..	70
1920	69	46	115
1921	80	50	130
1922	40	78	118
1923	8	40	48
1924	..	Discontinued	...

TABLE VI

ATTENDANCE AT THE NORTHERN ACADEMY, MONTEITH, SUMMER COURSES IN AGRICULTURE, 1920-1923

Year	Part I Elementary	Part II Elementary	Total
1920	23	..	23
1921	17	8	25
1922	15	18	33
1923	4	7	11
1924		Discontinued	

TABLE VII

Attendance at Kemptville Agricultural School, Summer Courses in Agriculture, 1922-1928

Year	Part I Elementary	Part II Elementary	Total
1922	64	..	64
1923	27	..	27
1924	19	19	38
1925	39	18	57
1926	28	27	55
1927	29	22	51
1928	21	25	46

THE NORMAL AND MODEL SCHOOLS

For nearly thirty years there was but one normal school in Ontario. That was the one that had been established by Dr. Ryerson in Toronto, in 1847. His tenure of office was just closing when another, the Ottawa Normal, was opened in 1875. This was followed by a third in London, in 1900. That definite instruction in agriculture was given in the first normal school during Dr. Ryerson's time has already been shown in the preceding chapters. During the years following his retirement, until about 1907, the course was not stressed. Theoretically it was supposed to be taught, and the students,

in both the normal and model schools, were expected to receive instruction in the subject. A statement by the Minister of Education, the Honourable G. W. Ross, shows the attitude of the Department towards the subject in these schools. "Under the regulations in force for the last ten years," he states in his report for 1898, "instruction has been given in agriculture in all the Model Schools in the country as well as in the Normal Schools, and every teacher authorized to teach a public school, during this period has had some training in the best methods of teaching the subject."[19] But though these regulations were in force, the model and normal school terms were, for many years, too short to teach much agriculture.

County Model Schools were authorized by the Act of 1843.[20] The later model schools, opened in 1877, had continued for thirty years. By that time it was felt that a change in the system of teacher-training should be made. While excellent work had been done in some of these schools, yet, "to secure more efficient teaching,"[21] it was proposed, in 1906, to substitute normal schools for the model schools. Thus, in 1907,

[19] *Report of Minister, 1898*, p. xxxvii.
[20] *Doc. Hist.*, Vol. VI, p. viii.
[21] *Report of Minister, 1906*, pp. ii-iii.

the county model schools were abolished, and four additional normal schools, one each at Hamilton, Stratford, Peterborough, and North Bay, were to be opened to take their places.

In the "Draft Syllabus of Studies and Regulations for the Normal Schools at London, Ottawa, and Toronto, Session 1907-1908", "Nature Study and School Gardens" was included in the course of studies. The school garden phase of it was dealt with as part of the general nature study course, and presented in three main divisions, the pedagogical views, the class-room work, and the practical. The books of reference included *Circular No. 13*, Dearness' *How to Teach Nature Study*, and Silcox and Stevenson's *Nature Study*.[22]

The next year three of the additional normal schools were opened. With a change in the regulations, in order to give the teachers-in-training in the normal schools a fuller appreciation of the agricultural interests of the country, and to prepare them more definitely for service in the rural schools, the students who passed the Easter examinations for second class certificates were given, through special arrangements with the Department of Agriculture, the privilege of taking a ten weeks' course of study at the Agri-

[22] *Report of Minister, 1907*, pp. 220-221.

cultural College at Guelph during the months of April, May, and June. The object of the course, in part, according to the regulations, was "to provide duly qualified teachers for the Public and Separate Schools in (*a*) Elementary Agriculture and Horticulture."[23] The course was optional, but a large number availed themselves of the opportunity to attend.

A significant announcement[24] was sent out in July of that year, which stated that the course had been provided at Guelph, and that a considerable number had obtained certificates in these subjects, and were open to engagement by school boards which could obtain their services by advertisement or on application to the Deputy Minister of Education, who would supply a list of such teachers with their addresses.

In that year, 1909, ninety-two of the students had attended, and had taken the course in elementary agriculture and horticulture. In 1910, forty-one attended, in 1911, seventy-nine, in 1912, forty-nine, and in 1913, seventeen. As an inducement to attend, the travelling and living expenses of the teachers who came from

[23] *Syllabus and Regulations for the Normal Schools, 1908-1909*, p. 9.
[24] *Circular No. 13, July, 1909*, p. 34.

the different normal schools were defrayed by the Government. Nearly all who attended secured their standing in agriculture; as an example, in 1911, all but three were recommended for certificates.[25]

The work in nature study and school gardens was also continued in the normal schools during these years, the school gardens being specially emphasized.[26]

In 1913, the courses provided at the Ontario Agricultural College for public school teachers, leading to the elementary certificate in agriculture, permitted these normal school students to attend during the summer and qualify. Shortly afterwards, the special spring courses for teachers-in-training at the College were discontinued,[27] and those teachers, thereafter, desiring to take the College course in agriculture, attended the summer courses for the elementary certificates in that subject. In the normal school syllabus, also, the name of the subject "Nature Study" was changed to "Nature Study and Agriculture." The same outline of work, however, was con-

[25] *Report of Minister, 1912*, p. 227.

[26] *Syllabus of Regulations for Normal Schools, 1908-1909*, p. 27; *1913-1914*, pp. 26-27.

[27] *Syllabus of Regulations for the Normal Schools, 1913-1914*, p. 11; *1914-1915*, p. 10.

tinued until 1916, when a separate course in "Agriculture and Horticulture" was included in the programme of studies. The course, as outlined, included such topics as dairying, poultry, field crops, horticulture, birds and insects, experimental plots, school gardens, school grounds, and home projects, with the statement: "The special object of the course in Agriculture is to prepare the teacher-in-training to train his pupils for the occupation of the farm, and to broaden and deepen their sympathies with nature and rural life."[28] The next year two additional topics: "School Progress Clubs," and "School Fairs," were added to the list. In 1918, a new manual *Elementary Agriculture and Horticulture* was prepared for use in the normal schools. Since that time there have been no important changes in the course of study in agriculture in these schools.

Agriculture is one of the subjects of the course taken by all the students. A course covering fifty periods is taught by a qualified instructor who holds either a specialist's or an intermediate certificate in agriculture. Connected with each normal school is a school garden used for

[28] *Regulations, Courses of Study and Examinations of the Normal Schools, 1916-1917*, p. 21.

demonstration and practical work, participated in by the students. At some of the schools affiliated with each normal school,[29] there are also school gardens. Observation lessons in agriculture are also taught in these model schools by qualified teachers. In addition, student-teachers are required to teach one or more lessons in the subject in the model (or practice) schools. Thus, all teachers who have graduated from our normal schools during the last ten years have had some practical instruction in the matter and method of agriculture.

[29] *Report of Inspector of Elementary Agricultural Classes, 1922*, pp. 11-12.

CHAPTER XI

Rural School Fairs

THE Rural School Fair had its birth in Waterloo County in 1909. In that year, seeds were distributed for small home garden plots to the pupils of three schools in North Dumfries Township. That fall, the first school fair in Ontario was held at the River Road School, near Galt. It was successful from every standpoint and was a "red letter day" long to be remembered by Mr. R. S. Duncan, now Agricultural Representative Supervisor, Ontario Department of Agriculture, who had the privilege of assisting in its organization and management.[1]

Three years later, in 1912, school fairs became established. The Department of Agriculture adopted the policy and agricultural representatives organized twenty-five such fairs in twelve different counties. The movement grew so rapidly that in three years more, there were two hundred and thirty-four school fairs, including

[1]Duncan, R.S., School Fairs and Home Gardens, *Minutes O.E.A., 1918*, p. 173.

2,291 rural schools—practically one-half of the rural schools of Ontario—taking in 48,386 pupils, who grew their grain and vegetables on over 51,000 plots, and among whom were distributed 6,868 settings of eggs, aggregating in all over 75,000 eggs. There were at these fairs a total of 116,000 entries, an attendance of 72,000 children, and 84,000 adults.[2] In 1917, the Department of Agriculture distributed over 300 bushels of oats, barley, wheat, peas, and corn, 1,211 bushels of potatoes, 25,680 packages of root and vegetable seeds, 14,685 packages of flower seeds, and 9,283 dozen eggs of a bred-to-lay strain of Barred Plymouth Rocks, White Wyandottes, and Rhode Island Reds. The grains were distributed in one pound packages, potatoes in five pound bags, corn in packages of one hundred and sixty kernels, and other seed were put up in small sealed packages sufficient to plant a plot ten feet by eighteen feet.[3] The best seed obtainable was sent out. By that year whole fields of grain and potatoes could be seen which had as their origin the small packages of seed distributed to the pupils of the schools during the preceding three or four years.

[2]Roadhouse, W. B., *Rural School Fairs*, p. 4.
[3]Duncan, R. S., *op. cit.*, pp. 173-174.

The "object of the school fair is . . to prepare the boys and girls for the farm, to create in them a greater love for farm life, to make them more efficient workers, more practical thinkers, and more intelligent citizens. The rural school fair does this by taking the children into the fields, by making them think in terms of the farm, and by teaching them the value of labour skilfully applied."

The fair is often held in a huge tent on the grounds of a school centrally located, in some large hall, armouries, industrial exhibition building, or other suitable place.

Although teachers and inspectors have contributed much to its success, the agricultural representative is the key-man. He is the chief organizer and promoter. A point is selected which seems to be central for ten or a dozen schools; these are visited, and the plans of the school fair are presented. Each school is expected to elect three pupils who constitute the school fair board. The chairman of this board—the pupil receiving the highest number of votes—represents the school on the rural school fair board, which meets at some convenient place, as in the district representative's office, and elects from among its members a president, vice-

president, secretary, and treasurer, the remainder of the pupils being on the board of directors with the district representative as general manager. With the president in the chair, the board of directors draw up their rules and regulations, lay their plans for raising money for prizes, and discuss the details in connection with the organization for a successful rural school fair. After organization, and other details have been effected, the representative distributes the seeds and the eggs (the latter not being distributed during 1929), to the different schools. The pupils take these home, select the ground, sow the seed, fertilize and cultivate the ground, and later exhibit the products of their work. Formerly, the representative visited the farm, saw how the experiments were being carried out, interviewed the boys and girls (and perhaps incidentally the parents), scored the plots and made suggestions for improvement. Prizes were awarded for the best plots as well as for the best exhibits at the school fair. Lately, in many districts, inspection has been discontinued.[4]

Financing the school fair is an important item. The prizes cost from $80 to $150. This money is

[4]Recommendations—School Fairs, Agricultural Representatives Branch, *Ontario Department of Agriculture, 1926*, p. 3.

raised locally. If distributed over ten or more schools the amount from each is not large. The pupils may see the trustees and ask for a grant which might be $5. They then may see the township council and obtain $20 or $25. The Department of Agriculture defrays the expenses of the agricultural representative and bears the cost of the seeds and several other incidentals in connection with the fair. As the prizes are paid by cheque and the transactions are carried on in a business-like manner, a good business training is given the boys and girls who participate in the fair activities.

In addition to the points mentioned, school fairs, in order to qualify for government support, are expected to be distinct and separate from other fairs. Not more than twelve schools are expected to be in a school fair group. The pupils select their own seed; only products from seed supplied—flowers, vegetables, and grains—may be exhibited at the fair. Where possible the exhibits are to be the product of the pupils' own work. No entry fee or admission fee is to be charged.

The prize list usually includes grain, roots, corn, flowers, poultry, essays, writing, collections of weeds, of woods, and of leaves, cooking, sew-

ing, manual training, and live stock. Special features, as contests in oratory, singing, sewing, stock-judging, and driving, with races of various kinds, which are likely to be interesting to the spectators, are often included. Other contests as poultry plucking, weed naming, whittling, carpenter work for older boys and exhibits as preserved fruit and loaves of bread by the older girls, may also be included.

In order that a large number may be encouraged to compete in many classes there are from four to six prizes for each class of exhibits, half or more of which are small money prizes often ranging from fifty or forty cents down.[5]

The winner of the first prize at the rural school fair may also become a competitor for the Provincial prizes.

A sample programme for the one-day fair is as follows:

9.00-11.00 a.m.—Placing of Exhibits. Work in charge of directors and teachers.
11.00-11.30 a.m.—Stock-judging contest. Sewing contest.
11.30 - 1.00 p.m.—Lunch.
1.00 - 3.00 p.m.—School Parade and Sports.

[5]For a sample of a detailed prize list see *Rural School Fairs*, by W. B. Roadhouse, pp. 10-13.

3.00 - 4.00 p.m.—Judging Live Stock.
4.00 - 4.30 p.m.—Driving Contests.

Tent open at 2.30 p.m.

The interest of the earlier years has never slackened, the popularity has never waned, but on the contrary the appeal to the people is ever increasing. As an indication of the remarkable growth of the movement, the figures in the accompanying table (Table VIII), showing six year periods, speak for themselves. One interesting feature is the number of adults attending, which shows the continued interest of the parents in the work of the children. Others are the increasing number of home plots, of entries, and of children taking part, in proportion to the number of fairs and number of schools included. All of these are most encouraging features.

A recent development in connection with the school fair movement is the Championship School Fair. The first and second prize winners —and in some cases the third and other prize winners—of the school fairs in the various parts of the county or district are brought together and permitted to compete at some central place. The championship fair is usually held in conjunction with some agricultural society fair,

which makes this a feature of its exhibition and finances the prize list. In connection with the Ancaster Fair, the county school fair has been held as an educational exhibit for a number of years, the latter paying its own prize money, the school fair association being given space for tents, and free admission to the grounds for teachers and pupils. Occasionally, as in the case of the Wentworth County Championship Fair, it is held independently. This Fair, in 1926, occupied three tents. The first, forty by sixty feet, contained the exhibits of fruit and vegetables, grain and roots, domestic science, manual training, and school work, while the second, twenty by forty feet was used for public

TABLE VIII

RURAL SCHOOL FAIRS[6]

	1909	1915	1921	1927
No. of School Fairs held.....	1	234	449	546
No. of schools included.....	3	2,291	3,847	4,715
No. of children taking part.....	58	48,386	95,307	138,800
No. of home plots.....	58	51,243	114,216	174,029
No. of entries at the fairs.....	174	116,236	193,545	308,627
No. of children attending.....	80	72,860	154,831	168,063
No. of adults attending.....	170	84,406	188,728	216,417
Total attendance.....	250	157,266	343,259	384,480

[6]*Report of Minister of Agriculture, 1927*, p. 77.

speaking contests, in which, between ten o'clock and noon, twenty-three township winners took part in this championship event. During the afternoon, home canning demonstrations by seven teams of three girls each, took place in this second tent. The third, a smaller tent, was used for first aid competitions and a health exhibit. From the time the first tent was opened large crowds studied the exhibits, the other tents being filled with interested spectators from the beginning until the end of the contests.[7]

The bringing together of these prize exhibits from the various parts of the county or district is an incentive for the boys and girls in the local school fairs to do their best, and serves as a demonstration in preparation and quality of the exhibits. The pupils observe the good points and superior exhibits and return to their own communities to put into practice what they have learned.

These championship school fairs have been slowly growing in numbers and in interest. In 1918, there were four of them (called at that time, district school fairs), one each in the counties of Oxford and Wentworth, one in

[7]Merritt, W. G., Special Educational Exhibits in connection with Fall Fairs, *Report of the Agricultural Societies, 1927*, pp. 17-18.

Algoma district, and one on Manitoulin Island.[8] In 1920, there were seven,[9] and in 1926, seventeen such fairs. In 1927, twenty-three counties held these final contests. The adoption of these fairs in all the counties of the province is not very feasible, as in many cases the distance is too great for the eligible pupils to come from the outlying points to this championship fair. A greater difficulty though lies in the fact that some of the agricultural society fairs are held early in the autumn which makes it impossible for the prize winners of the school fairs, which are usually held in the latter part of September or early in October, to exhibit.

A new feature of the 1927 school fair, and one which created considerable interest, was the awarding, by the T. Eaton Company, Limited, of a suitably engraved silver trophy to the champion pupil in each of the five hundred and forty-eight school fairs in the province.[10]

A movement has been in progress, in some localities, during recent years, to co-ordinate the school fairs with the fall fairs. The opinion is held by some that we are over organized. This

[8] *Report of Minister of Agriculture, 1918*, p. 49.
[9] *Report of Minister of Agriculture, 1920*, p. 44.
[10] *Report of Minister of Agriculture, 1927*, p. 79.

applies to fairs as well as to other interests. Leaving out such exhibitions as the Canadian National and those at Ottawa and London, there are held annually about three hundred and sixty fall fairs and five hundred school fairs. Of all this number, only about twenty-five of the latter are held in connection with fall fairs. In Norfolk County most of the school fairs are operated in this way with apparently good results to some of the weaker societies. Looking at the educational aspect of the conjunction of the school fair with the larger one, a recent advocate claims that the school fair offers a most attractive feature; it is educational and gives the crowds something extra to see at the fall fair.

During a discussion relating to the amalgamation of agricultural societies and school fairs, which took place at the annual meeting of the societies in 1926, the director of school fairs, who has seen the movement grow and has watched its development from the beginning, expressed the opinion that unless the identity of the school fair is maintained it will lose its distinctive usefulness and appeal.

Of the wonderful progress and phenomenal success of the rural school fair from the standpoint of numbers, attendance, and interest, there

is little doubt. It is, in the nature of the work connected with it, an important factor in agricultural education in the rural schools. Among the school children it is the crowning feature of the season's agricultural activities, the climax of the home garden, the experimental, and summer's project, work. It is here that the products of the plots, the chickens, the collections of natural objects, cooking and sewing, and manual training and art, are placed on exhibition, pupil competing against pupil, and school against school. It awakens in the child new interests and aids in his development. It helps the boy or girl to appreciate and enjoy the work around the farm home. It interests parents in the school, in their children's work, in the agricultural representative's efforts on their behalf, and in many cases, because of the introduction of new varieties or strains of potatoes, grain, or poultry into their midst, it has put real dollars into their pockets. It pleases the parents to see the children prospering and developing and becoming efficient in various lines of agricultural work. It influences the social and co-operative life of the district and stimulates the sentimental spirit of the whole community.

CHAPTER XII

Special Schools

A few schools have been started in the province with the chief aim of specializing in agricultural education. They stand between the ordinary public schools and the Agricultural College and are therefore types of agricultural high schools. Some of the recent ones are considered in this chapter.

THE MONTEITH FARM AND NORTHERN ACADEMY

The Monteith Farm, situated on the Temiskaming and Northern Ontario Railway, about two hundred and eighteen miles north of North Bay and thirty-five miles south of Cochrane, was begun under the auspices of the Department of Agriculture for the purpose of demonstrating the agricultural possibilities of, and supplying the need for, an experimental farm for that part of New Ontario.

The first move in establishing the institution was made in 1907, when the Department of Agriculture took under control eight hundred

acres of heavily timbered land near the townsite of Monteith. During 1909, about forty-five acres were cleared and twenty acres put under crop, chiefly wheat, oats, and potatoes. The results of the experiments abundantly attested the fertility of the soil and the likelihood of growing good crops in the district. Samples of the hay, grain, and vegetables were shown next year at the Canadian National Exhibition and constituted striking proof of the possibilities of that part of Ontario.[1]

On July 31st, 1913, the first Farmers' Picnic and Short Course was held at the farm in order that the farmers might see what was being done and get information which might be helpful to them. Over fifteen hundred people from the sections between New Liskeard and Cochrane were present on that occasion, and heard addresses by prominent men and experts from the Ontario Agricultural College. Following that, experimental and demonstration work was carried on year after year, with encouraging results.

About 1918, special provision was made in Ontario for furnishing homesteads in this district for soldiers returning from the Great War in Europe. These returned men were first to be

[1] *Report of Minister of Agriculture, 1910*, p. 54.

sent to an agricultural training depot, the experimental farm at Monteith, before being placed on their farms.[2] Accordingly, in 1919, a two-storey edifice, to serve as a school of agriculture was erected on the Monteith Demonstration Farm. This "College", equipped with offices, dormitories, dining room, and lecture rooms, to accommodate about one hundred students, was to be used for the training of these future settlers, and for the young men and young women of the north who later attended the short courses in agriculture and household science.[3]

As has been previously stated (when discussing summer schools), owing to the overflow at the Guelph and Whitby summer schools, the first summer course at Monteith for teachers was held during the summer of 1920. The building which had been built for the Soldiers' Re-establishment Work was used for lodging purposes.[4] Twenty-three attended that year.

The next year, Mr. George S. Johnson, principal of the Whitby Collegiate Institute and a specialist in science, and in agriculture, was appointed principal of the Monteith school

[2]Lane, C. H., Agricultural Education, *Bulletin 1918*, No. 44, p. 23.

[3]Agricultural Development in Northern Ontario, *Agricultural Gazette, Jan., 1920*, p. 32.

[4]*Report of Inspector of Elementary Agricultural Classes, 1920*, p. 30.

which now enlarged its scope of work to serve for the higher education—especially along practical lines—of the boys and girls north of the Cobalt, Haileybury, and New Liskeard district, and became known as the Northern Academy.

In September, 1922, the Department of Education took over the farm, with the stock and general equipment, as a school farm. The establishment, which had been transformed into a residential school for these boys and girls of the north, was now capable, with a staff of six teachers, of giving both a broad academic and a practical education.[5] With such a school, it was thought that the people of the north would rally around the institution and make use of the superior advantages afforded them so near at hand.

This part of the country was new, the district was sparsely settled, and the farmers were just taking up the land and getting started on their farms; so, as in many other cases of advanced education, the people at first did not respond in as large numbers as expected. The school, though, has been doing good work, attempting to serve the needs of this part of New Ontario. Mr. Johnson resigned the principalship after

[5] *Report of Minister, 1922*, pp. 7-8.

about four years of pioneering service and was succeeded by Mr. William F. Hiscocks, the present principal. The school is being carried on as a regular high school, taking the prescribed normal entrance course. In place of the other sciences, agriculture is taken in all the forms, the students, in addition to the regular high school agricultural course, doing a considerable amount of practical work on the farm—about two hundred and forty acres of which are now under cultivation and pasture. The attendance during 1928, averaged about ninety boys and girls.

THE NEW LISKEARD DEMONSTRATION FARM AND AGRICULTURAL HIGH SCHOOL

Among the efforts to help populate and bring under cultivation a large area in that district, an agricultural high school, a demonstration farm, and a government creamery were established by the Department of Agriculture at New Liskeard.[6] On the farm, which was in close proximity to the town, was erected a judging pavilion with lecture room above. This room, for several years, was used as a continuation

[6]Lane, C. H., *op. cit.*, p. 23.

high school, with Miss Isabella E. Dobbie, as principal.[7]

About 1920, a large barn in which to keep demonstration cattle, sheep, and swine for class work at the judging pavilion, was added. At the same time a new high school was built which permitted the lecture room of the pavilion thereafter to be used for the agricultural part of the high school course carried on under the Department of Education. The agricultural representative and other officials of the Department of Agriculture, gave considerable assistance in working out an agricultural course suitable for that part of Ontario, so that the high school students might have practical instruction in agriculture.[8]

The operation of the demonstration farm has also aided in making available much valuable information for the farmers of New Ontario. A 1927 report states: "In summarizing the work of the Farm for the year, attention is especially drawn to the successful results obtained from the dairy herd, from the sheep flock and sheep club work, plot results and especially results

[7]*Report of Inspector of Elementary Agricultural Classes, 1917*, pp. 34, 40-41.

[8]Agricultural Development in Northern Ontario, *Agricultural Gazette, Jan., 1920*, p. 35.

obtained from the twenty-acre field of fall wheat, which yielded thirty-eight bushels per acre."[9]

The school, during recent years, has been growing, and, besides teaching the ordinary high school course, has been equipping students of the district with a knowledge of good live stock, and improved methods of growing, judging, and handling cereal and vegetable crops.

KEMPTVILLE AGRICULTURAL SCHOOL

The Kemptville Agricultural School is a special type of higher school at Kemptville designed to give opportunity to older boys and girls, and young men and women, in that section, to acquire "practical instruction and training in Agriculture", farm mechanics, and household science, and "to raise and improve the standard of Agriculture in Eastern Ontario."

The buildings necessary to open the school to students were completed in 1920. These consisted of the main school building of three storeys, one hundred and twenty feet by sixty-one feet, which contains the office, accommodation for the staff, class rooms, and laboratories for instruction in agriculture and household science, the mechanics' building, eighty feet by

[9] *Report of Minister of Agriculture, 1927*, pp. 138, 147.

fifty feet, "arranged for demonstration and practice on gas engines, tractors, farm machinery, blacksmithing, including horse-shoeing, carpentry and cement work," and the live stock pavilion which contains also a gymnasium above, suitable as an auditorium for several hundred people.[10] Later, a poultry plant has been built, an old barn has been overhauled to accommodate the cattle and other stock, and other buildings for sheep, pigs, and bees have been added. The school farm, with a fine young orchard, consists of three hundred acres of varied soil suitable for demonstration and experimental purposes.

The first regular class which entered in 1920, consisted of twenty-five young men. The next year, sixteen students were enrolled in the senior year and thirty in the junior, while seventeen girls entered the domestic science class.[11] In 1922, forty-two young men and nineteen young women attended.[12] From that time, until recently, the attendance has remained about the same.

The regular course in agriculture is a two year

[10]*Report of Minister of Agriculture, 1920*, p. 81.
[11]*Report of Minister of Agriculture, 1921*, p. 93.
[12]*Report of Minister of Agriculture, 1922*, p. 110.

one, in household science one year.[13] Besides these, several short courses, as the herdsman's, farm power, and household science, have been given. The aggregate attendance at these short courses during the first year was three hundred and fifty-eight.

During the earlier years, some excellent thoroughbred Holstein and Ayrshire cattle, Shropshire sheep, and Yorkshire hogs, were obtained for the farm. With the improved equipment for work, the live stock, the bees and poultry, together with the grain, fruit, and vegetables grown on the farm, the courses are made practical and helpful.

During recent years, the Kemptville School has been a suitable location for the holding of Teachers' Institutes, and since 1922, a centre for the summer school in agriculture for the teachers in that part of the province.

With the generally favourable conditions, Mr. W. J. Bell as principal, a staff of eighteen, and students drawn from a large area in that vicinity, the Kemptville Agricultural High School is prospering and filling an important place in agricultural betterment in eastern Ontario.

[13] *Calendar, Kemptville Agricultural School, 1928-1929*, pp. 4, 27.

THE RIDGETOWN AGRICULTURAL VOCATIONAL SCHOOL

This is the latest, and, at the same time planned to be, one of the best types of our agricultural high schools. It was begun partly as an experiment to meet a need, which it was thought was felt in rural districts, for a school which would give an education beyond the entrance to boys and girls of from about fourteen to eighteen years of age, who were likely to go, or should go, on to school for one, two, or more years, but who were not preparing for the normal entrance or for matriculation into the University.

It is an attempt to fill the want for a school of the type which is not supplied by our ordinary continuation or high schools, or by those which have departments of agriculture, as the schools at Port Perry, Whitby, and Drayton, or such special schools as have agricultural departments in technical schools, as those in operation at Beamsville, Renfrew, St. Thomas, and Ridgeway. As the principal of the school stated recently: "The school at Ridgetown is the most recent development in the search for a satisfactory type of agricultural education for boys and girls from rural communities which may

give to these communities what the technical school offers to the city."

This school originated in 1921. In that year the Ontario Government purchased as an experimental farm, a farm of about one hundred and eighty-six acres on the border of Ridgetown. In 1924 and 1925, the developments in connection with the farm brought forth the idea of erecting a building (already conceived in 1921), which would serve the purpose of a community hall, and an agricultural school. The Department of Agriculture and the Department of Education (the latter under the Technical Education Act), each agreed to bear a certain share in the cost of the building, equipment, and salaries of teachers.

The management of the school is under the agricultural advisory committee of the high school board. As the high school for the district is situated just across the road from the new building, the operation of the two schools is under one principal and staff, although each school is entirely separate in organization and financing. The building contains class rooms, chemical laboratory, household science room, and a community hall, and is adjacent to the

farm which provides every facility for demonstration and experimental purposes.

The school opened in September, 1926, with Mr. Norman Davies, principal, and a staff capable of carrying on both the academic and the vocational work. In the agricultural school all the teachers, except the teacher of horticulture and another teacher who assisted in winter work, were regularly qualified high school teachers, those for the science and agricultural subjects (the principal and two other men), being specialists in both science and agriculture.

The course is equivalent to that of Junior Matriculation in English, history, mathematics, and science, with special subjects in agriculture and household science. The complete course is intended to be covered in four years. In the first year, in addition to English literature, English composition, Canadian history, and algebra, as taken in the high school, the boys take arithmetic, chemistry, physics, botany, entomology, beekeeping, poultry, livestock, horticulture, bacteriology, field crops, manual training, and rope work; and the girls, poultry, cooking, sewing, house management, and home nursing.

Every pupil must take all the subjects for the

first year. Thus boys and girls who intend to remain at school for only one or two years get something of the essential academic subjects, as well as some knowledge of the agricultural, science, or household science ones, all of which should be of great value in any walk of life.

During later years, dairying, farm mechanics, economics, farm management, and farm bookkeeping are included for the boys and bacteriology, dairying, and horticulture for the girls. In addition to the regular course, a winter course of three months is held for young men. At the end of each winter course, and at the conclusion of each year's work, a certificate is given to each student who completes the work, while at the end of four years a graduation diploma is granted to each one completing the course.

The first year's enrolment totalled twenty-two, sixteen boys and six girls. In 1927-1928, the attendance was forty-two in the first year (twenty-three girls and nineteen boys) and nineteen in the second (nine girls and ten boys). At the same time the attendance at the high school, which had different pupils, kept up well.

The special value of such a course to a rural community is that the boys and girls receive a good training in general subjects as well as in

most of those of the high school. Special attention, also, in this school is given to public speaking.

There is also the inducement for boys and girls who are interested in such studies to remain at school longer, where they get the extra discipline that comes from sports, are helped in the development of character, given a broader vision of life, and are led to see the value of doing things along scientific lines. These are received during the formative period from fourteen to eighteen years of age, when they should be most helpful for the progressive farmer of the future.

This vocational education is appealing also to the people of the town, as the course is broader than that of the regular high school. Preparation for entering hospitals and the domestic science course is becoming attractive and has drawn some girls.[14]

There seem to be good reasons for believing that this type of school is making its appeal to this rural community. The course appears to be better suited than that of the ordinary high school one to the needs of the pupils, most of whom would ordinarily drop out before com-

[14] *Report of Minister of Agriculture, 1927*, p. 121.

pleting a course in such a school. Figures from Ridgetown High School, for instance, show that from 1922 to 1926, of the two hundred and twenty-four pupils who entered the first year, nine left during the year, fifty-eight after the first year, twenty-two after the second, and thirteen after the third, a total of one hundred and two. While forty-one have completed more or less of the four years' course, not more than twenty-five of the original two hundred and twenty-four have attended or are likely to attend normal school or the University.

The school gives reality in school life (the practical work at home on the farm being co-related with much of the school work); it helps to solve the teen age problem in a rural community by supplying work for the extended time at school beyond the entrance; it provides a community centre for athletics and for social gatherings, and helps to make rural life more interesting and enjoyable; and it should help to make farmers and farmers' wives who will be more capable, better leaders in the community, and better citizens of the country.

CHAPTER XIII

Text-Books

IN preceding chapters, reference has been made to certain text-books in agriculture which have been prepared for use in the Ontario schools. Such books, authorized by the Department of Education, have not been numerous. While several books on the subject have been prepared or used, apparently only three strictly Canadian text-books in agriculture have been authorized in Ontario during the last eighty-five years.

The first text-book prepared in the province was in the form of an *Agricultural Reader*,[1] published early in 1845, by Mr. John Simpson of Niagara.[2] James Cummings, Esquire, member of the Legislature for South Lincoln, being interested in Mr. Simpson and in his book, and believing it would be quite useful to agricultur-

[1] *Doc. Hist.*, Vol. VII, p. 51.

[2] Miss Janet Carnochan in her *History of Niagara*, page 76, states that Mr. Simpson was editor of *The Chronicle* and published an almanac for a number of years, also the *Forget-Me-Not*, and several books. He became a member of Parliament, and afterwards Deputy-Auditor-General.

ists, sent a recommendation to the Superintendent of Education to have it authorized. In the letter he expressed the hope that the Chief Superintendent would see "the great advantage" in causing the book to be introduced generally into "the Common Schools of the Province," as the great majority of the children attending such schools were of the agricultural class and generally pursued the same occupation as their parents.

Dr. Ryerson replied to this letter on the third of June, 1846, as endorsed on it, but there seems to be no record of the reply in the Education Department. Further, there seems no evidence that the book was used as a text in the schools or that it was authorized by the Provincial Board of Education.

In the *History of Niagara* appears an item referring to this book, which is illuminating: "In 1845, *The Agricultural Reader*, by a vice-president of the Agricultural Society, supposed to be Bishop Fuller. We pity the scholars condemned to its use, but perhaps it never was used in the schools. The chief contents were discussions of mangold-wurzels, manure, sheep, etc., but relieved in one place by verse, as 'The

Farmer's Boy'; it was printed by John Simpson."[3]

The second book, the *First Lessons in Scientific Agriculture for Schools and Private Instruction*, was written by Dr. (afterwards Sir) William Dawson, Principal of McGill College, Montreal, and published by Mr. John Lovell, Montreal, in 1864. In the preface, the author stated that the work was "intended as a text-book for teachers desirous of introducing the study of Scientific Agriculture into their schools, and also as a manual for young men who may be pursuing the subject as a branch of private study." The writer, departing from the plan of ordinary text-books, threw the matter into the form of a series of reading lessons, adapted to the use of senior classes.

The book consisted of three hundred and twenty-three pages and contained sixteen chapters. In it were a few illustrations, chiefly of chemical experiments. About one-third of the book dealt with physics and chemistry given as a basis for the remainder which was a study, for the most part, of plants, soils, drainage, and manures.

The work would be dry and advanced for the

[3]Carnochan, Janet, *op. cit.*, p. 287.

lower school pupils of to-day. To many advanced students, as those of the normal schools, and teachers in McGill, for whom it was chiefly written, it would be an instructive and suggestive treatise on the subject. Like its predecessor, the book did not find a favourable reception in Ontario.

The next text was but a few years later. Over twenty years had passed since Dr. Ryerson had attempted to introduce agricultural education into the schools of Ontario. A new era had begun to dawn in the educational life of the province and Dr. Ryerson was hopeful that agriculture would now receive favourable consideration in the schools. As a contribution to the cause, he prepared, as has been previously stated,[4] a text-book, *First Lessons in Agriculture, for Canadian Farmers and their Families*, and had it published in 1870. He intended it to be a guide and a help to the teacher as well as a text for the pupils. In the preface he stated that the first and great staple interest of our country required young men who would "devote to agriculture their talents, their attainments, their fortunes and their lives." If his little book would, among other things, tend to show how

[4]See page 76-77.

much science, art, refinement, and pleasure, as well as profit, were involved in the true pursuit of agriculture, and thus elevate it in the esteem and occupation of the agricultural youth of Canada, he should be amply compensated for the labour of preparing it.[5]

The book was very favourably received. The Honourable David Christie, Minister of Agriculture at that time, referred to it in the following terms: "Dr. Ryerson has published a valuable little work on Agriculture which I hope to see made a Text book in all Rural Schools. . . He has done good service in the Country by compiling the Manual to which I have referred; and I hope he will see to it that the benefit which it is so well calculated to confer shall not be lost to the Country. It is a good thing for the cause which we desire to promote that we have so able a coadjutor as the Chief Superintendent of Education. I feel convinced that he will soon make Agriculture and Mechanical Instruction a leading feature in our Common School teaching."[6] *The Ontario Farmer*, (a monthly journal of agriculture, horticulture, and country life, published in Hamilton), referred to the book as

[5]Ryerson, Egerton, *First Lessons in Agriculture*, Preface, p. vii.
[6]*Doc. Hist.*, Vol. XXIV, p. 108.

a "timely, and valuable contribution to our Canadian literature, in the preparation of which Dr. Ryerson has rendered an important service to our agricultural, educational, and literary interests." It hoped to see the book "extensively introduced" in the common schools, tendered its thanks to the Chief Superintendent, and commended the "'First Lessons' to all and sundry."[7]

A Committee on Text-books, appointed to examine the various books in use and to make recommendations regarding those that were considered most suitable for the schools, reported that they had examined the *First Lessons in Agriculture* and that they would recommend it for adoption in those schools in which instruction was given in that important Department. It was also recommended for authorization. This recommendation was acted upon and the book was authorized by the Council of Public Instruction for the use of the schools in Ontario.[8] It was the first authorized text-book in agriculture in the province.

The book consisted of twenty-eight chapters of fine print, and was divided into two parts.

[7] *The Ontario Farmer*, Vol. II (Nov., 1870), p. 325.
[8] *Doc. Hist.*, Vol. XXII, p. 119.

Part I included preparatory knowledge, chiefly chemistry, while Part II dealt with preparatory knowledge applied, discussing particularly the soil, crops, plants, buildings, household and farm economy. A perusal of its pages shows the vast difference between the method of instruction in those days as compared with the present. The body of the book was made up of question and answer, catechism style, and was intended wholly to give information. It is needless to say that such a method would kill any enthusiasm in teacher and pupil, and therefore the results, so far as we understand agricultural education to-day, would be anything but hopeful. So far as the records show, the book was not widely used.[9]

Another book, the *First Principles of Agriculture*, by Professor Henry Tanner (and Lawson), was published in Halifax, Nova Scotia, in 1880.[10] This was a Canadian edition of the book published in England by Macmillan Company. In 1882, the Honourable Adam Crooks, Minister of Education for Ontario, authorized Professor Tanner's *First Principles of Agriculture* for use in the public schools of Ontario, and *Elementary*

[9]Dandeno, J. B., *op. cit.*, p. 49.
[10]*Doc. Hist.*, Vol. VI, p. 192 (Footnote).

Lessons in Agricultural Science, by the same author, for use in the high schools.[11] In that year, public school boards of trustees were authorized to require the teachers in their employ to give occasional lessons in the principles of agriculture using Professor Tanner's text.[12] Apparently but few lessons, however, were given.[13]

In 1889, another effort was made to establish agriculture as a regular subject on the public school programme of studies.[14] As the authorized text-book did not appear to be suitable for the schools, another text, *The First Principles of Agriculture*, by Mr. James Mills, President of the Ontario Agricultural College, and Mr. Thomas Shaw, Professor of Agriculture in the same institution, appeared. It was prepared in conjunction with the new regulations and was the result of the effort at that time to place agriculture on the programme of studies as a regular subject,[15] and was perhaps "the first

[11]Mills, James, Report of the President, *Report of Ontario Agricultural College, 1885*, p. 4.

[12]*Report of Minister, 1882*, p. 13.

[13]White, E. T., *Public School Text-Books in Ontario*, p. 69.

[14]*Report of Minister, 1889*, p. xxxiv.

[15]White, E. T., *op. cit.*, p. 69.

official recognition of the subject in elementary schools."[16]

The book was published by the J. E. Bryant Co., Limited, Toronto, in 1890. After advance sheets had been submitted to a number of prominent agriculturists and stock breeders with requests for criticisms and improvements, and the work had been received with substantially unanimous approval by them, the Minister of Education, authorized it for use in the public schools.[17]

The book consisted of two hundred and fifty pages divided into nineteen chapters of fine print, had a number of illustrations, and was quite comprehensive, dealing with the soil, tillage, crops, diseases of crops, weeds, insects, breeds of live stock, with the feeding, care, and management of the same, dairying, silos and ensilage, and concluded with a chapter on "The Cultivation of Forest Trees, for Shade, Ornamentation, and Protection."

To one interested in agriculture, or desirous of reading up on the subject, the book would be quite valuable. As a text-book it contained much useful information. As to its style, Mr.

[16]Leake, A. H., *op. cit.*, p. 12.

[17]Preface and Title Page of *The First Principles of Agriculture.*

Shaw, one of the joint authors, had stated that it would "be written in the plainest Anglo-Saxon," "its language so simple" that a child would understand it, and "in so pleasing a manner" that both young and old would "love to read it."[18] But even if it lived up to these expectations, and although the subject was supposed to be obligatory for rural schools,[19] there is little evidence of its being received seriously. In fact, the Minister of Education reported that very few boards of trustees had availed themselves of the privilege granted them of introducing agriculture and using the prescribed text. The lack of interest in the subject was again ascribed to the text-book which was said to be too technical and therefore uninteresting to the public school pupils. To remedy this defect, arrangements were made with Mr. Charles C. James, Deputy Minister of Agriculture for Ontario, and formerly a member of the staff of the Ontario Agricultural College, to prepare a new public school agriculture text-book which was to be "so simple in its language and so elementary in its treatment of the subject

[18]Shaw, Thomas, Agriculture in Our Rural Schools, *Minutes O.T.A., 1888*, p. 78.

[19]*Report of Minister, 1889*, p. xxxiv.

as to be within the range of pupils from twelve to fifteen years of age."[20]

This sixth (or for Ontario, the fourth, and up to the present, 1930, the last) text-book for public schools, *Agriculture*, was published by George N. Morang, Toronto, in 1898. As a text-book, it was to serve for "any high school or public school in Ontario, if so ordered by a resolution of the Trustees." In 1899, it was authorized for use in the fourth and fifth forms of the public schools and the subject made compulsory in these forms in the rural schools.[21] The book contained forty short chapters of quite readable matter, descriptive and informative, illustrated by a large number of very good pictures. As stated in its preface, the purpose of the book was to "aid the reader and student in acquiring a knowledge of the *science* of agriculture as distinguished from the *art* of agriculture; that is, a knowledge of the 'why' rather than a knowledge of the 'how'."[22]

Besides the ordinary topics, as those on the plant, the soil, crops, garden, orchard, vineyard, live stock, and dairying, dealt with in some books on agriculture up to that time, the author

[20] *Report of Minister, 1898*, p. xxxvii.
[21] *Report of Minister, 1899*, p. 72.
[22] James, C. C., *Agriculture*, p. iii.

had a chapter each on bees, birds, forestry, roads, and the rural home, and in the appendix gave a few formulas for spray mixtures. He attempted to be practical and gave some material which should appeal to the good judgment and imagination of his readers. In his chapter on birds, he stated: "The Birds are the farmers' friends, but they must be treated as friends." "Even crows, however, feed largely on insects when insects are to be got." "What birds of your locality rear two broods in one season?" Writing of the country home he made the suggestion that in the house there should be "one large bow window for house-plants and a grate for a log fire." "On the outside there should be a wide verandah with comfortable chairs." "Two great essentials to health are pure air and sunlight; therefore, have plenty of windows, and keep all trees far enough away so that the windows will not be darkened." Also, "you can, if you will, make in time an ideal country home, which is one of the greatest blessings of any country."[23]

The book was well received and proved to be the most serviceable text-book in agriculture that has so far been prepared for Ontario schools.

[23] *Ibid.*, pp. 178-180, 194-195.

The text was also authorized for use in the public schools of Nova Scotia and of New Brunswick,[24] as well as in Wisconsin and in other parts of the United States.[25]

Shortly after the authorization of this text-book in Ontario, nature study began to attract attention and include topics heretofore taken under the heading of agriculture. In 1904, this subject, nature study, was given a place on the re-organized programme of studies and a course in the subject was outlined for Forms I, II, III, and IV. Elementary science was to be studied in Form V.[26] From that time, until the recent stressing of agriculture, nature study and school gardens, or a combination of nature study and agriculture, has held the ascendency and the text-book in agriculture has fallen into disuse. In 1909, the regulations announced that no text-books were prescribed for pupils in agriculture and household science. These subjects were to be taken up under the teacher and suitable reference books were to be provided in the library by the board of school trustees.[27] James' *Agriculture*, and the agricultural department

[24] *Doc. Hist.*, Vol. VII, p. 51.
[25] *Report of Minister, 1904*, p. xxxii.
[26] *Ibid.*, pp. 124-133.
[27] *Report of Minister, 1909*, p. 196.

bulletins were, however, recommended as teachers' guides.

Besides the above mentioned texts, a few others have been published or used by individuals in certain schools. One of these was a small work on *Agricultural Science*, issued by Professor H. Y. Hind during his residence in Toronto, beginning in 1848. This was used by himself in the Toronto Normal School. Another was an edition of the *Niagara Agricultural Reader* of 1845, issued by Mr. C. C. James. Still another was Dr. Davidson's *Agricultural Text-book* reprinted in Montreal in 1879, and issued by Dr. S. P. Robins.[28]

Since 1900, many books, bulletins, pamphlets, and reports have been issued by professors, lecturers, teachers, and individuals, for class work in connection with the schools and colleges or for distribution among agriculturists and other interests. Most of these publications deal especially with only one branch of the subject and are not text-books in agriculture for general use in the common schools. Many American books are also used in our higher and normal schools and for reference in the public schools.

A manual of two hundred pages, entitled,

[28] *Doc. Hist.*, Vol. VII, p. 51.

Elementary Agriculture and Horticulture, prepared by Dr. J. B. Dandeno, Inspector of Elementary Agricultural Classes for Ontario, and issued by the Department of Education in 1918, contains many valuable suggestions on matter and method and has a large number of good illustrations. It is the present authorized guide "intended particularly for the use of the teacher," in our normal, public, and separate schools.

CHAPTER XIV

Grants and Aids

GRANTS and other aids have already been referred to, briefly (in former chapters), but as they have been numerous, have come from various sources, and have been given for several specific purposes, further consideration will be given some of them in this chapter.

From the time the government considered, with any degree of seriousness, agricultural education in the schools, grants and other aids have been given to those who attempted to carry on the work. In the early Normal School, and in the University, government aid was given to teachers and professors in the form of grants and appropriations for salary, land, supplies, and equipment. Large sums were also given later to the Ontario Agricultural College. As these are government institutions the appropriations have continued as necessity required.

When the school garden movement began in Ontario, an initial grant of one hundred dollars was offered to every rural school board which provided a school garden, and a subsequent

annual grant of ten dollars, provided the appropriation made by the Legislature would warrant such payment.[1] To qualify for these grants the area of the school garden was to be at least one acre, in addition to that of the regular school ground. The trustees were to provide the necessary tools and implements such as rakes, hoes, lines, and pruning knives. A suitable shed was to be erected for use as a working laboratory and for storage of tools, seeds, and other material. The grant was to be payable on the report of the inspector, who was to certify that the school board had complied with the prescribed conditions.[2]

According to reports, the first of these grants were given in 1903, when four schools qualified, receiving in all $400. In 1904, eight schools received $450. In 1906, $2,000 was voted for elementary agriculture but only $124.50 of this was spent.[3]

In 1907, a change in the regulations, indicating more definitely the purposes for which this money was to be used, allowed teachers, as well as trustees, some remuneration for the extra

[1] *Report of Minister, 1904*, pp. xxxii-xxxiii.
[2] *Ibid.*, pp. 113-114.
[3] *Report of Minister, 1907*, p. 175.

work. Again a school garden was to be maintained, and accommodation and equipment provided. There was to be a subsequent annual grant of $20 "out of any grant made for Elementary Agriculture and Horticulture by the Legislature to be expended in caring for such School Gardens and for keeping the school grounds in proper condition." The teacher who gave the instruction in agriculture and supervised the school garden work was to receive a grant of $30 a year. If the sum voted by the Legislature was not sufficient for the grants, the Education Department would make a pro rata distribution. The grants were to be payable on the certificate of the inspector that the school board and teacher had complied with the regulations pertaining to such government assistance. In order to qualify for these grants the area of the garden was to be, at least, one-quarter of an acre.[4] In 1908, the teachers received $120 and the trustees $680.

In 1909, the initial grant by the Department of Education to the school board was reduced so as to not exceed $80, subsequent grants were to be $30. The teacher, if certified, was still to receive the annual grant of $30 in addition to

[4] *Ibid.*, pp. 175-177.

the regular salary. The size of the garden was now not limited, for the "area of the garden does not determine its success." The area was to depend largely upon the area of the available grounds and upon the number of pupils who took part in the work. A suggestion was made that where the school ground was one and a quarter acres in extent it could be divided so that the boys' playground would be one-half an acre, the girls' three-eighths of an acre, front lawn, approaches, etc., one-eighth acre, pupils' plots for vegetables and flowers one-eighth acre, and field experiments, fruits, and forestry plantations one-eighth acre.[5]

By 1912, the initial grant was made $50 to school boards, with an annual grant thereafter of $30, but the grant was not to exceed the total amount expended by the board during the calendar year for the work. To the teacher who was qualified, the grant was also $30 for the year. To the teacher who was not certificated in agriculture, but who conducted the work and had a school garden, the grant was $12. In this case the grant to the board was only $12. If instruction was given with experimental plots in the school grounds, and "a scheme of home

[5] *Circular No. 13, 1909*, pp. 5, 6.

gardening with the pupils," the grants were to be $8 each to the board and to the teacher.

By 1912, there were over one hundred schools receiving grants. In that year the trustees received $1,893.03, and the teachers $2,203. From that time on the number of schools receiving aid and the amounts of the grants increased rapidly. There was good reason for this. The general interest in industrial education at that time had led to the appointment by the Dominion Government, of the Royal Commission on Industrial Training. In their report they referred to agricultural education, making the statement that: "The question is one of national importance, and should be taken up by the Dominion Government."[6] Mr. C. C. James, Deputy Minister of Agriculture at that time, also stated that he did not think that this country could invest any money to better advantage than in connection with the improvement of public school education along all lines, technical as well as others.[7]

Following this, in 1912, the Dominion Government in anticipation of a measure giving encouragement and extended aid to agricultural

[6] *Royal Commission*, Vol. IV, p. 2222.
[7] *Ibid.*, p. 2189.

education, made, under *The Agricultural Aid Act*, an appropriation of $500,000 to enable the provinces to carry on agricultural education.[8]

On June 6th, 1913, that Government passed *The Agricultural Instruction Act*, which appropriated $10,000,000 to be available during the ten years ending March 31st, 1923, to be allotted to the various provinces in proportion to their populations. According to this act, $700,000 was to be allotted the first year. This amount was to be increased by $100,000 annually until 1917, from which year until 1923, $1,100,000 would be provided yearly.[9] Ontario's annual share, on the basis of population, from 1917 to 1923 was $336,274.96.[10] The amounts were to be payable "for the purpose of aiding and advancing the farming industry by instruction in agriculture," and for "education, instruction, and demonstration carried on along lines well devised and of a continuous nature."[11]

The Departments of Agriculture and of Education were intended to have equal share in the responsibility for the uses of the money received. The agreement between the Federal

[8]Dandeno, J. B., *op. cit.*, p. 50.
[9]*The Agricultural Instruction Act*, pp. 1-2.
[10]*Report of Inspector of Elementary Agricultural Classes, 1918*, p. 22.
[11]*The Agricultural Instruction Act*, p. 1.

Government and the province which related to the money to be administered by the Department of Education read as follows: "To provide for and to encourage the teaching of Agriculture, Manual Training, as applied to work on the farm, and Domestic Science in High, Public, Separate and Continuation Schools and in Universities, to be available for grants, services, expenses and equipment, and travelling expenses of teachers, inspectors and others in attendance at Short Courses of other educational gatherings, and to be paid out on the recommendation of the Department of Education."[12]

The Department of Education used its share in various ways. As the best results were likely to be obtained by the direct teaching of agriculture in the schools, that Department used much of its money for teacher-training, equipment, inspection, school gardens, and grants to boards and teachers.[13]

The immediate response was most encouraging. In the first year, 1913, one hundred and seventy-seven rural and village schools formally undertook to meet the requirements demanded for special grants. Besides these, many other

[12] *Report of Minister, 1918*, p. 98.
[13] *Report of Minister, 1916*, p. 68.

schools carried on garden work and gave instruction in agriculture without undertaking to fulfil all the requirements for the grants.[14]

With the additional amounts available, the schedule of grants was revised. A partial list of the grants for rural ungraded schools offered since 1917,[15] is shown in Table IX, and for rural and urban graded schools, in Table X.

Special grants for school boards, for teachers having other certificates, for teaching more than one class, and for fifth classes, are also available.[16] For the number of schools receiving grants, see Table I, page 104.

While the grants were being arranged for the public schools, the higher schools also received attention. By 1909, the new interest taken in agricultural education called for some special consideration in connection with the continuation and high schools. In order that agricultural teaching might be placed upon a more substantial basis in these schools, the Continuation Schools Act of 1909, and the High Schools Act of

[14]*Report of Minister, 1913*, p. 648.

[15]*Report of Inspector of Elementary Agricultural Classes, 1916*, pp. 4-5, and *1917*, pp. 11-13.

[16]For schedule see *Ontario Department of Education Circular 13, 1919*, pp. 6-7, or for regulations and schedule, *Special Departmental Grants Public and Separate Schools, Circular 56, 1924*, pp. 10-14.

the same year, provided for municipal grants for the maintenance of such a department. It was enacted that where an agricultural department was established by the Minister in a continuation or high school, the council of the county in which the school was situated should, on or before the fifteenth day of December, in each year, pay to the board of the school, in which such department was established, the sum of $500, which should be applied by the board to the purposes of such department.[17]

After a few years, special grants were also made to teachers in these higher schools and collegiate institutes, for giving instruction in the subject. According to the 1914 regulations, on the report of the inspector that the regulations regarding the teaching of agriculture in these schools had been satisfactorily complied with, the Department of Education promised to pay the following grants:

[17] *Acts of the Department of Education, 1909*, pp. 94, 105.

TABLE IX

SCHEDULE OF GRANTS FOR RURAL UNGRADED SCHOOLS

FORMS III AND IV

Requirements	Where the teacher holds a second class certificate but is not certified in Agriculture		Where the teacher holds an Elementary certificate in Agriculture and Horticulture, or receives a certificate during the year	
	To the Board	To Teacher For full year	To Trustees	To Teacher For full year
A.—FIRST PLAN Instruction Instruction throughout the whole year. Home Gardens Home gardens or projects by pupils of Forms III and IV supervised by the teacher. School Gardens Well kept grass and flower plots, borders, screens, etc.	Not exceeding $10.00	$15.00	Not exceeding $20.00	$40.00
B.—SECOND PLAN Instruction Instruction throughout the whole year. School Gardens A pupils' school farm or school garden at or near the school, having at least six square rods. School Grounds Well kept grass and flower plots, borders, screens, etc.	Not exceeding $15.00	$20.00	Not exceeding $30.00	$50.00

TABLE X

SCHEDULE OF GRANTS FOR RURAL AND URBAN GRADED SCHOOLS

FORMS III AND IV

Requirements	Where the teacher is certificated in Agriculture, or receives a certificate during the year	
	To the Board	To the Teacher For full year
A.—FIRST PLAN Instruction Instruction throughout the whole year. Home Gardens Home gardens or plots supervised by the teacher.	$20.00 for each teacher not exceeding $100.00 for each school.	$40.00
B.—SECOND PLAN Instruction Instruction throughout the whole year. School Gardens A pupils' school garden at or in connection with the school, having at least six square rods for experimental and observation plots for each class.	$20.00 for each teacher not exceeding $150.00 for each school.	$50.00

To the board, an annual grant, the equivalent of the amount expended by the board for equipment, etc., for carrying on each of the lower and middle school courses, but not to exceed $100 for each course. To the teacher who held a high

school professional certificate and either the degree of B.Sc. (Agr.), or the degree of B.S.A., or a Specialist's Certificate in Agriculture, a grant of $120 for each course carried on throughout the calendar year, or $60 to the end of June and $40 for the remainder of the year. To the teacher who held an intermediate certificate the corresponding grants were $80, $40 and $30 respectively. For conducting experimental and demonstration plots an additional grant of $25 each was available for the teacher and the board.[18] If the teacher carried on the course in more schools than one the grant would be increased by two-thirds of the regular grant for each additional school.

With the establishment and organization of the present vocational schools, and the vocational departments in continuation and high schools and collegiate institutes, an additional system of legislative grants was put into operation. An act, known as the Technical Education Act, which had evolved out of the recommendations of the Royal Commission but had been delayed on account of the Great War, became effective in 1919. By this Act a sum of $10,000-

[18] *Regulations of High Schools and Collegiate Institutes, 1922*, pp. 23-24.

000 was set aside by the Dominion Government for vocational, technical, or industrial education, or instruction approved by agreement between the minister (of labour) and the government of any province, to be distributed to the provinces of the Dominion over a period of ten years. The method of distribution was such as to require a province to spend on this form of education an amount at least equal to that of the Dominion grant.

With this Technical Education Act passed, it remained for the various provinces to enact legislation which would spend satisfactorily the federal and provincial grants. In 1921, the provincial government of Ontario passed the Vocational Education Act, effective July 1st. This Act provided for the establishment and development of the vocational schools giving instruction in technical, commercial, industrial, home-making, art, and agricultural subjects. According to the Act, with amendments in 1924, and in 1925, annual grants were available for salaries of the teaching staff, for buildings, and for equipment, provided the schools or departments organized under the Act complied with the regulations.[19]

[19]For fuller details see: *Recommendations and Regulations for the Establishment, Organization and Management of Vocational Schools*, also *The Vocational Education Act of 1921*, pp. 39-52; and *Amendments, 1924, 1925.*

In 1923, in order that the cessation of the Dominion grant under the Agricultural Instruction Act of 1913 would not be too abruptly felt when the appropriations by the Act expired, an additional grant of $900,000 was voted on similar terms for the year 1923-1924. Subsequently, no further grants from this source have been available.

As the inspectors, and many public and high school teachers, were, by this Dominion Grant, aided in improving their qualifications in agriculture, and induced to supervise and teach the subject, perhaps the chief result from the appropriations of this Federal fund was the actual introduction of agriculture into both the primary and secondary schools.

Besides those mentioned, other grants in the form of salaries, allowances, and for payment of expenses, have been made to directors, inspectors, agricultural representatives, and teachers, and aid has been given to schools and school fairs by the various departments, councils, and associations.

In addition to the actual money grants, aid in the form of supplies for the Experimental Union and for the school fairs, and material, bulletins, and circulars for schools, have been given generously.

CHAPTER XV

Summary

AS shown in the earlier pages of this book, efforts for the improvement of the methods in agriculture were begun in Ontario over one hundred years ago. A society for the benefit of agriculturists was organized in Newark, in 1792. Apprenticeship in farming was practised before the end of the century. Instruction to the Indians was given in connection with the Indian Mission Schools at the Credit, west of Toronto, by Egerton Ryerson, in 1826-1827. In these and other early efforts the object was to improve the simple practices in farming. With regard to the Indians, the principal aim was to aid them in gaining a livelihood and to help them to settle down from a wandering to a more stable mode of life.

In 1837, following a trip to the United States to investigate the educational conditions in that country, Dr. Duncombe introduced into the Legislature of Upper Canada a bill making provision for the trustees of the public schools to raise, levy, and collect moneys for securing a

parcel of land for the use of the teacher or school in which instruction might be given in horticulture or agriculture. The Rebellion in Upper Canada breaking out shortly after this, centred attention in another direction, so nothing further came of the proposal at that time.

In a few years, however, another move was made to introduce some agricultural education into the schools of the province. Shortly after Dr. Ryerson was appointed Superintendent of Education for Upper Canada, in 1844, he visited Europe for the purpose of studying the systems of education in the various countries on that continent, and was favourably impressed with what he saw of agricultural work in some of the schools. Upon his return, he advocated the teaching of agriculture in our common and higher schools and introduced the subject into the Normal School, which was started in Toronto, in 1847. In this latter institution, instruction in agriculture, in the form of lectures in agricultural chemistry and practical work in garden plots, was given for a number of years.

Within five years after work was started in the Normal School, a Chair of Agriculture was established, and a course of lectures in agriculture was begun in the University of Toronto.

This course was continued for more than a score of years. But although a small "Model Farm" was provided for the use of the Professor of Agriculture, and although prizes and scholarships were offered as inducements for students to take the subject, yet only a few, not more than about half a dozen in any one year, took the course.

As about this time, agricultural education of the agricultural college type was meeting with considerable approval in the United States, it was decided by the Legislature to purchase a farm and establish a special school of agriculture for Ontario. Such an institution, the Ontario Agricultural College, was founded at Guelph, in 1874.

For a number of years the progress at the College was slow. Then the professors went out and met the people and addressed them at their institutes and meetings. Excursions to the College were inaugurated and large numbers were brought to see what was being done. Agricultural representatives were stationed in various parts of the province and took to the farmers the latest information on methods in farming. Bulletins and circulars were sent out and carried to all interested, suggestions and

information regarding the results of the most recent investigations in scientific agriculture. Then the College began to reach the people and the confidence of the farmers was gradually gained.

The influence of the College was also radiated to the public and high schools. In these schools, agricultural education had been slow in gaining a permanent foothold. Although text-books had been provided, and although efforts, from Dr. Ryerson's early days as Superintendent until the end of the century, to establish courses, had been made, yet, because of the lack of sympathy of the parents and trustees, and of the small number of teachers prepared to teach the subject, but little progress had been made. It was not until the nature study and school garden movement, fostered by the College and the Macdonald Institute, helped in supplying teachers for the public schools, and until the era of scientific investigation had begun to usher in more favourable conditions in the high schools, that a more permanent interest began to be taken. This interest, aided by such factors as the changing conceptions of the function of the school and the encouraging report of the Committee of Nineteen of the Ontario Educational

Association in 1904, led, during the early years of this century, to the introduction of agriculture of the nature study, school garden type into the public schools. Helped also by the suggestions of the Deputy Minister of Agriculture and the Superintendent of Education that special teachers of agriculture be placed in some of the higher schools, agricultural classes were started in a few of the collegiates and high schools of the province, in 1907.

The increase in the number of schools teaching agriculture was slow, however, until other influences helped in that direction. In foreign countries, agricultural education began to attract more attention and more schools taught agriculture. The value of the subject as a course of study in the schools became more widely recognized. The Royal Commission appointed in 1911 brought in a report favouring agriculture and suggested that greater emphasis be placed upon teaching the subject in the schools. The Dominion Government followed by giving to the provinces, between 1913 and 1923, $10,000,000 to be used to further this type of education. This led, through larger grants, and the expenses of the teachers being paid, to a larger number attending summer schools in

agriculture, and to a larger supply of teachers being prepared to teach the subject in the schools.

These conditions, together with the teaching of agriculture to all the teachers-in-training in the normal schools, the incentives, through the efforts of the agricultural representatives, of the school fairs, and the increasingly sympathetic encouragement from parents, trustees, and inspectors, have resulted in the teaching of agriculture in a rapidly increasing number of the lower schools, until it, in some of its phases, is now taught in a majority of the rural public and separate schools in the province.

Such conditions, accompanied by some special influences, have been having their effect in the higher schools. The movement towards industrial and vocational education introduced new ideas regarding the aim and the work in the school. Changes in the regulations allowed agriculture to be taken as an option against other subjects for matriculation and normal entrance. The Technical Education Act of the Dominion Government, in 1919, gave $10,000,000 to the provinces, as an aid in vocational, technical, and industrial education. The provincial Vocational Education Act of 1921, pro-

vided for further grants, and the establishment of agricultural departments in the higher schools. The co-operation of the Department of Agriculture has given encouragement and financial assistance, and has helped in promoting some special schools. These, and similar influences, have helped in introducing agriculture into a slowly increasing number of schools, until, at present, it is taught in over one-fifth of the high and continuation schools, and in a few special agricultural high schools.

APPENDIX A

EXAMINATION PAPER, PART I

For the Governor-General's Prizes in Agricultural Chemistry in the Normal School
April 7th, 1849

1. What is the object of the study of Agricultural Chemistry?
2. Name the forces, whose effects it is the province of Chemistry to investigate; describe their mode of action, and state the distinction existing between Chemical forces and other forces influencing matter.
3. Into how many departments is the Science of Chemistry divided and of what do they respectively treat?
4. Name the so-called organic elements; associate with each its symbol, combining number, specific gravity, and remarkable properties; also, state the names of some compound substances of which one, or more, of these elements form important constituents.
5. Name the so-called organic elements which usually enter into the composition of vegetables and animals.
6. What is meant by the terms "adhesion", or "heterogenous attraction"? Into how many orders is adhesion divided? Illustrate its several orders by examples.
7. What is an acid, a salt, an alkali? Give examples of each class, and affix to each example its symbol.
8. What is Carbonic Acid? Give its symbol. How many pounds of Carbon are there in two hundred and twenty pounds of Carbonic Acid? How would you exhibit the presence of Carbonic Acid in Air? In Limestone?
9. How would you exhibit the presence of Carbon in plants, and of nitrogen in the atmosphere?
10. Exhibit the exact composition of Atmospheric Air. State its pressure on the square inch. What products are formed by the passage of lightning through the atmosphere? Give their

symbols. In what ratio does the atmosphere decrease in density as you rise above the level of the sea.

11. What is the composition of Water? What are its most important properties?
12. What is Oxidization? What is Combustion?
13. Name the inorganic acids and oxides, salts and alkalies commonly found in vegetables, and give their symbols.
14. What is the nature of caloric? How does it effect bodies? In how many states may it exist? What measure of caloric is required to convert water into steam? Upon what circumstances does the boiling point of water depend?
15. How would you illustrate by examples the conversion of latent into sensible heat, and the contrary? Explain the phenomena of freezing mixtures. State the effect which an evaporating substance will produce upon surrounding bodies.
16. What is the cause of the development of heat during the decomposition of vegetable, or animal, matter?
17. Explain the phenomenon of dew. What is the dew point? State the conditions required for the formation of dew. How would you exhibit the deposition of dew? Why does dew fall sooner on some bodies than on others?
18. What is Silica? What purpose does it mainly serve in the economy of vegetables and animals? What conditions are necessary, in order that water may dissolve it?
19. In what form does phosphorus exist in vegetables? What do you mean by phosphates? Name the phosphates usually found in animals and vegetables. In what state does phosphorus exist in the inorganic world?
20. What remarkable property is common to potassium and sodium?
21. State into how many parts a vegetable may be divided, with respect to its structure; and name them.
22. Trace the course of the sap; mention the changes which are supposed to take place, when it arrives at certain parts of the plant.
23. What are the functions of the roots,—of the leaves? How do the trunks of dicotyledonous vegetables increase in dimensions?
24. State the sources from which plants derive their organic

elements and give the symbol of each compound that you may mention.

25. State the distinction between proximate and ultimate principles, and name the proximate principles found in any considerable quantity in vegetables.
26. What are insomeric compounds? Give some examples which occur in vegetable chemistry.
27. Name those proximate principles which are common to plants and animals.
28. Illustrate the composition, by means of symbols; first, of grape sugar; second, of cane sugar; third, of gum; fourth, of starch.
29. Into what proximate principles may grape sugar be resolved, when it suffers decomposition?
30. Explain the transformation, by means of symbols, which takes place when grape sugar is, in part, converted into alcohol, and then into vinegar.
31. From what sources are the inorganic elements of soils originally derived?
32. What elements are essentially necessary in the composition of a fertile soil?
33. In what state must all inorganic elements be before they can enter into the composition of vegetables?

EXAMINATION PAPER IN AGRICULTURAL CHEMISTRY; PART II, 1849

34. What is the object of ploughing the soil? Explain the difference between surface ploughing and sub-soil ploughing.
35. What is the object of draining? And state the various effects which careful ploughing, sub-soil ploughing, and thorough draining may be supposed to produce upon the condition of the soil.
36. Name the depth, breadth and width of a drain generally constructed for the purpose of thorough draining. Draw a sectional diagram of two or three different kinds of drains. How far apart would you place your drains? 1st, in heavy land; 2nd, in light land; and how would you place them in draining a hillside?
37. Name the inorganic elements which enter largely into the composition of the cerealia.

38. State the composition of common granite rocks, and name all the substances which a decomposed granite rock may be supposed to give to the soil.
39. How may the decomposition of mineral substances in a soil be accelerated? What is clay, and how would you accelerate the decomposition of clay silicates? What object would be secured by such decomposition?
40. State the various reasons which induce Farmers to apply manures to the soil.
41. Illustrate by examples the various modes in which, 1st, vegetable; 2nd, animal; 3rd, mineral, manures may fertilize the soil.
42. Why is farm-yard manure a good fertilizer? What is the character of the fluid portion of farm-yard manure?
43. State the nature of the change which takes place upon the decomposition of urea. Why is the resulting compound beneficial to vegetables? Give its symbol. What peculiar property does it possess, and how would you render it serviceable?
44. How would you accelerate decomposition of organic matter in the soil? What purpose is served by the decomposition of organic matter?
45. Name the compounds which are the ultimate results of the decomposition of organic matter.
46. Explain the principles upon which the benefits, arising from a proper rotation of crops, are dependent.
47. What inorganic compound does milk contain in abundance? State the source of that compound, and the purposes it serves in animal economy. With what substance would you manure your pastures in order to increase its quantity in the milk of Cows?
48. What is the composition of gypsum, of common salt, of lime? and for what purposes would you lime, 1st, heavy clay land, containing but little carbonate of lime; 2nd, peaty soils?
49. State the composition of a marl.
50. What is meant by the fallowing of land? For what purpose do Farmers fallow land?
51. What purposes do the proximate principles, found in the vegetables, which contain nitrogen, serve in the animal economy?

52. What purposes do non-nitrogenized proximate principles serve, and in what form are they chiefly given off by the animal?
53. Give a list of the nitrogenized and chief non-nitrogenized proximate principles found in vegetables.
54. What inorganic substances enter largely into the animal frame?
55. Trace the course of the food from the mouth to the time of its being prepared to mingle with the blood.
56. Trace the course of the blood from the left auricle of the heart through the animal frame.
57. State the nature of the change which takes place in the blood when in the lungs. In what other parts of the system does a change take place in the chemical composition in an inorganic portion of the blood? Illustrate that change by means of symbols.
58. What peculiar property does saliva possess, and what purposes does it serve in the animal economy?
59. Upon what order of adhesion is the effect of alcoholic liquors supposed to be suspended?
60. What is the theory of the transformation which takes place when milk is brought in contact with an animal membrane, as in the curding of milk?
61. Explain the reason why meat, well boiled in large quantities of water, is not nutritious. And how would you prepare the strongest soup from a given quantity of meat? In what way would the mode of preparation differ if you prepared the meat alone for consumption?
62. Why is salted meat deficient in nutritious qualities?
63. From what source do the young of mammiferous animals derive their bony structure? Express the chief proximate inorganic principles in symbols.
64. Upon what four conditions is the healthful flow of the various aqueous currents in the animal body and in the vegetable, dependent?
65. What is the primary cause of "colds", and of what determination to disease which has of late years been exhibited by many vegetables, especially in the tubers of the potato?
66. What remedy, in part, would you suggest with reference to vegetables?[1]

[1] *Doc. Hist.*, Vol. VIII, pp. 258-260.

SKETCH OF THE CROPPING OF THE "EXPERIMENTAL MODEL FARM" IN THE GROUNDS OF THE NORMAL SCHOOL, TORONTO, DURING 1853[1]

GERRARD STREET

Early June Pea Sown May 12th 3 quarts	Early White Corn Planted May 27th	Early Ash-leafed Potatoes Planted May 9th	Laing's Improved Swedish Turnip Sown June 17th
Early Field Pea Sown May 12th 3 quarts	Sweet Corn Planted May 27th	Early June's Potatoes Planted May 9th	Yellow Swedish Turnip Sown June 17th
Flack's Victory Pea Sown May 12th ¼ peck	Yellow Corn Planted May 27th	Mechanics' Potatoes Planted May 12th	Golden Yellow Turnip Sown June 17th
Blue Imperial Pea Sown May 12th 7 quarts	Tuscorora Corn Planted May 27th	Irish Cup-Potatoes Planted May 14th	Aberdeen Yellow Turnip Sown June 17th
Cabbage Curled Savoy Planted June 17th	Horn Carrot Planted May 7th	Long Pink-Eyes Planted May 14th	Barley 1 peck Sown May 19th
	Altringham Carrot Planted May 7th	Flat Pink-Eyes Planted May 14th	
Flat Dutch Cabbages Planted June 17th	White Belgian Field Carrot Planted May 7th	Prince Regents Planted May 15th	
	Extra Blood Beet Planted May 7th	Kildrummy Oats Imported from Scotland Sown May 20th 10 quarts	
Bergen Cabbage Planted June 17th	Long Beet Planted May 7th		
	White Sugar Beet Planted May 7th		
Red Dutch Cabbage Planted June 17th	Mangel Wurtzel Planted May 7th		Grass 12 ounces Red Clover 4 ounces White Clover
	Sugar Beet Planted May 7th		
	Red Mangel Wurtzel Planted May 7th		
	Dutch Parsnips Planted May 7th		

PATHWAY ALONG THE BACK OF THE MODEL SCHOOL

[1] *Doc. Hist.*, Vol. XI, p. 20.

ROAD TO GERRARD STREET

PATHWAY ALONG BACK OF THE MODEL SCHOOL

Barley 9 quarts sown May 21st Grasses: 1½ pounds Timothy 1 pound Red Clover 12 ounces Agrostis Stolonifera 4 ounces White Clover	Barley 13 quarts sown May 21st Grasses: 2 pounds Timothy 12 ounces Red Clover 8 ounces White Clover
Canadian White Oats 1 peck, sown May 21st Grasses { 12 ounces Timothy 12 ounces Red Clover	Scotch Barley Oats, sown May 20th 1 peck, imported from Scotland Grass: 3 pounds Racey's Perennial Rye-Grass—imported 12 ounces Red Clover, 4 ounces White Clover
Canadian Black Oats 1 peck sown May 21st Grasses { 12 ounces Timothy 12 ounces Red Clover	Sandwich Oats, sown May 20th 1 peck, imported from Scotland Grass: 3 pounds Racey's Perennial Rye-Grass 12 ounces Red Clover, 4 ounces White Clover
Barley 10 quarts sown May 23rd Grasses: 1½ pounds Timothy 1½ pounds Cow Clover	Barley 12 quarts sown May 26th Grasses: 1½ pounds Timothy 1½ pounds French Lucerne 1½ pounds White Clover

GERRARD STREET

APPENDIX C

EXAMINATION PAPER FOR SPECIAL CERTIFICATE FOR TEACHING AGRICULTURE

PROVINCE OF ONTARIO

EXAMINATION OF PUBLIC SCHOOL TEACHERS, HELD UNDER THE REGULATIONS OF THE COUNCIL OF PUBLIC INSTRUCTION

2nd CLASS PROVINCIAL CERTIFICATES

COMMENCING 19th JULY, 1875

NO. 1

ZOOLOGY, BOTANY AND AGRICULTURE

Special Paper

Time—One Hour and a Half

1. Explain the processes of Gemmation and Fission, and name the classes of the Animal Kingdom in which they occur.
2. Describe the Monotremata, and show that they are more closely related to the birds than any other mammals.
3. Name the classes of Mollusca.
4. Describe the Nightshade Family, and name the principal cultivated plants belonging to it.
5. Explain the terms Raceme, Akene, Embryo, Angiosperm, Peduncle, Chlorophyll, Panicle, Involucre and Dioecious.
6. To what Class Order and Genus do the Turnip, the Apple, the Pea, the Lily, and the Oak, respectively belong?
7. Write notes on the cultivation of Potatoes and Turnips.
8. What is the reason that a rotation of crops is advantageous?
9. What is the comparative value of the different kinds of barnyard manure?

APPENDIX D

PUBLIC SCHOOL TEACHER'S SPECIAL CERTIFICATE

IN NATURAL HISTORY, BOTANY, AND AGRICULTURAL CHEMISTRY

PROVINCE OF ONTARIO

BOARD OF EXAMINERS for the *Couniy* of *Wellington.*

This is to certify, that.....
(Christian and Surname in full)

having passed the Special Examination prescribed by the Council of Public Instruction, under the authority of the Ontario School Law, and having also obtained a Second Class Certificate under that Act, a Special Certificate of Qualification for teaching the subjects of Natural History, Botany and Agricultural Chemistry has been awarded, and is hereby granted to *him*; which Certificate, in terms of the above cited Act, shall be permanent during the good behaviour of the holder, and valid, as respects those subjects only, in all the Municipalities of this Province.

STANDING in the Different Branches to which this special certificate is given. Number One being the highest and Number Six the lowest.

Natural History
Agricultural Chemistry
Botany

Dated at *Guelph* the *third* day of *August*, one thousand eight hundred and seventy *five*.

.....

Inspector of Public Schools.

.....

.....

.....

.....

Board of Examiners.

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